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An Interactional Approach to the Study of Performance Control Systems

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Dedication

To Kyle

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An Interactional Approach to the Study of Performance Control Systems

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This dissertation consists of two essays. The first essay draws on psychology theories to propose a framework for incorporating personality variables into the study of performance control systems. The second essay reports an experiment to highlight the implications of one component of this framework: the efficacy of exogenously assigned performance control systems can depend on the personality types of employees who are subject to these systems.

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Chapter 1: Introduction

One of the most important topics in managerial accounting research is how performance measurement, monitoring, evaluation and reward systems (hereafter, performance control systems) affect employee motivation and behavior in organizations (Sprinkle and Williamson 2007; Prendergast 1999). Despite the voluminous literature on the behavioral effects of performance control systems, little research effort is devoted to understanding how personality types affect the design and efficacy of these systems. This paucity of research can find its root in the belief that human behaviors are primarily a function of the situations in which they occur. Although many accounting researchers still hold this belief, psychologists now advocate the premise that personality and situational variables interact in dynamic ways to affect human behaviors (e.g., Fleeson 2001; Shoda, Mischel and Wright 1994).

This dissertation consists of two essays. In the first essay, I summarize the progress made in psychology on how personality types and situational variables interact to affect human behaviors. Based on this progress, I propose a framework for incorporating personality variables into the study of performance control systems. In the second essay, I use an experiment to highlight the implications of one component of this framework: the efficacy of exogenously assigned performance control systems can depend on the personality types of employees who are subject to these systems.

Over the years, much theoretical and empirical work in psychology has contributed to a better understanding of the specific mechanisms through which situational and personality variables interact to affect human behaviors. Earlier attempts to understand person-situation interactions model behavior as a function of the person, the situation, and a person-situation interaction term using Analysis of Variance (ANOVA). These studies reveal that the effect of a situation can depend on the person who is in it, and the effect of a person can depend on the situation the person is in. Buss (1987) draws on prior research and describes three additional mechanisms through which personality and situational variables interact: selection, evocation and manipulation. More specifically, selection refers to the idea that people are not randomly assigned to situations. Instead, they intentionally seek and avoid situations. Furthermore, individuals do not have to accept environments as selected or given, they frequently change their situations unintentionally through evocation or intentionally through manipulation.

Based on these mechanisms, I propose a framework for incorporating personality variables into the study of performance control systems. First, consistent with the idea of selection, employees can select the type of performance control systems they subject themselves to. As a result, these systems can affect employee behavior indirectly by attracting employee types who are predisposed to behaviors that are either desirable or undesirable in an organization. Second, even when a performance control system is truly exogenously assigned, the efficacy of

the system can depend on the personality types of employees who are subject to this system. Finally, in environments where managers have discretion over the design and implementation of performance control systems, their personality types and the personality types of their employees can affect how they design and implement these systems through evocation and manipulation.

I then use an experiment to highlight the implications of one component of this framework: the efficacy of performance control systems can depend on the personality types of employees who are subject to these systems. In this experiment, I examine the effects of a widely adopted performance control system - programs that offer employees nonpecuniary recognition based on measures of relative performance. Overall, I find that these programs increase both employees' productive efforts (efforts intended to increase one's own performance) and counterproductive efforts (efforts intended to decrease peer performance). However, an important personality type, the Dark Triad of personalities, moderates these effects. Interestingly, these programs primarily lead individuals high on the Dark Triad to increase productive efforts and those low on the Dark Triad to increase counterproductive efforts.

The results of my experiment highlight the importance of considering employee personality types when designing and implementing performance control systems. These results provide a clear example of how a performance control system that motivates productivity in some employees can at the same time induce

detrimental behaviors in others. Here, managerial accounting researchers can leverage theories developed in personality psychology and provide important insights. More specifically, managerial accounting researchers can identify important individual characteristics that interact with key elements of performance control systems in affecting employee motivation and behaviors.

The rest of the dissertation proceeds as follows. Chapter 2 introduces the framework for incorporating personality variables into the study of performance control systems. Chapter 3 reports the experiment that highlights the implications of one of the framework's components.

Chapter 2: An Interactional Approach to the Study of Performance Control Systems

2.1 INTRODUCTION

One of the most important topics in managerial accounting research is how performance control systems affect employee motivation and behavior in organizations (Sprinkle and Williamson 2007; Prendergast 1999). Prior research has studied extensively how performance control systems interact with task and environmental variables to affect employee performance, and how various environmental variables affect the design and implementation of these systems.[1] These studies have provided important insights into our understanding of the use of various performance control systems in practice.

Despite the voluminous literature on the behavioral effects of performance control systems, little research effort is devoted to understanding how personality types affect the design and efficacy of these systems. On one hand, the lack of research in this area is surprising as performance control systems are means to affect employee behavior. It's unlikely that we can gain a comprehensive understanding of these systems without considering the characteristics of the managers who put these systems in place and those of the employees whose behaviors are the target of these systems.

[1] For example, see a review of these studies in Bonner and Sprinkle (2002) and Bol (2008).

On the other hand, the lack of research attention to personality types is not surprising given the belief held by many accounting researchers that human behaviors are primarily a function of the situations in which they occur. This belief gained popularity after social psychologist Walter Mischel published his influential book, *Personality and Assessment*, in 1968. He wrote:

> Although it is evident that persons are the source from which human responses are evoked, it is situational stimuli that evoke them, and it is changes in conditions that alter them. Since the assumption of massive behavioral similarity across diverse situations no longer is tenable, it becomes essential to study the difference in the behaviors of given person as a function of the conditions in which they occur.

However, over the years, personality psychologists have provided effective rebuttals to Mischel's argument. More importantly, both personality and social psychologists have now come to accept and advocate the premise that personality and situational variables interact in dynamic ways to affect human behavior (e.g., Fleeson 2001; Shoda, Mischel and Wright 1994).

Thus, I have two primary objectives for this chapter. First, tremendous progress has been made in psychology on how personality types and situational variables interact to affect human behavior. I summarize this progress and introduce it to the accounting literature. Second, based on this summary, I propose a framework for incorporating personality types into the study of performance control systems.

Personality types refer to enduring individual differences in thoughts, feelings, and behaviors (McCrae and Costa 1996). A large literature in personality psychology demonstrates that these differences are stable over time (e.g., Costa and McCrae 1980, 1988; Headey and Wearing 1989; Roberts and DelVecchio 2000). Prior to 1960's, personality psychologists' examination of the effect of personality variables on human behavior existed harmoniously but separated from social psychologists' investigation of the effect of situational variables on human behavior. In 1968, Walter Mischel published an influential book that disrupted this peaceful coexistence (Michel 1968).

Mischel (1968) argues that behaviors are too inconsistent across situations for personality to have a meaningful impact. In support of this argument, he reported the results of a meta-analysis that suggest that the correlations between personality and behavior or behavior across situations rarely exceeded the 0.3-0.4 range. These correlations suggest that less than 15% of the variance in behavior can be accounted for by personality. His book caused many social psychologists to believe that personality traits are of extremely limited value for predicting human behavior, and it even led many to question the mere existence of personality.

Over the years, advancement in personality psychology provides effective rebuttals to Mischel's argument. First, Funder and Ozer (1983) point out that the effects of personality variables cannot be compared to the effects of situational variables without a common metric. Social psychologists traditionally use *F*

statistics from ANOVAs to demonstrate the effects of manipulated situational variables. Personality psychologists, on the other hand, traditionally use correlations between personality scales and behaviors to document the effects of personality variables. The statistics used by social psychologists and personality psychologists are not comparable at face value. However, Funder and Ozer (1983) find that after converting effect sizes into correlations, the correlations between situational variables and behaviors average less than 0.40 in several of the most famous experiments in social psychology (e.g., Festinger and Carlsmith 1959; Darley and Batson 1973; Milgram 1975).

For example, in a series of arguably the most famous experiments in the history of social psychology, Milgram (1975) identifies two important environmental variables that influence a subject's willingness to obey commands from an authority figure to harm an innocent victim: (1) the physical proximity of the victim to the subject, and (2) the physical proximity of the commanding authority to the subject. Funder and Ozer (1983) find that the correlations between these two variables and obedience are 0.42 and 0.36, respectively. These effects are no bigger than those of important personality variables.

Second, researchers argue that correlations in the range of 0.3-0.4 are not small if personality types can predict important life outcomes. For example, based on a review of over 50 studies, Roberts, Kuncel, Shiner, Capsi, Goldberg (2007) conclude that the effects of personality traits on important life outcomes such as

mortality, divorce and occupational attainment, are indistinguishable from the effects of socioeconomic status and cognitive ability. In many cases, personality traits even predict these important outcomes better than socioeconomic status.

Third, personality psychologists have made tremendous progress on understanding the origin of personality traits. Studies using twins reared together and twins separated at infancy and reared apart as subjects consistently find that regardless of the personality traits studied, the correlations of these personality traits between identical twins are much higher than those of fraternal twins (e.g., Nichols 1978; Goldsmith 1983; Tellegen, Lykken, Bouchard, Wilcox, Segal, and Rich 1988; Bouchard, Lykken, McGue, Segal, and Tellegen 1990). Results from these studies provide convincing evidence that genetics plays an important role in the formation of personality traits. In fact, these studies estimate that about 50% of the variance in personality traits can be accounted for by genetic differences as compared to 70% of the variance in IQ.

Finally and most related to my objective for this chapter, researchers from both paradigms (i.e. personality psychology and social psychology) now agree that it is useless to argue about whether personality or situational variables govern human behavior because these variables interact in dynamic ways to affect human behavior (e.g., Fleeson 2001; Shoda, Mischel and Wright 1994). Consequently, much theoretical and empirical work attempt to shed light on the specific mechanisms through which personality and situational variables interact.

Earlier attempts to understand person-situation interactions model behavior as a function of the person, the situation, and a person-situation interaction term using ANOVA. This type of person-situation interaction is often referred to as statistical or mechanistic interaction (e.g. Emmons et al. 1986). Statistical interaction implies that the effect of a situation can depend on the person who is in it, and the effect of a person can depend on the situation the person is in. Buss (1987) draws on prior research and describes three additional mechanisms through which personality and situational variables interact: selection, evocation and manipulation. More specifically, selection refers to the idea that people are not randomly assigned to situations. Instead, they intentionally seek and avoid situations. Furthermore, individuals do not have to accept environments as selected or given, they frequently change their situations unintentionally through evocation or intentionally through manipulation.

Based on these mechanisms, I propose a framework for incorporating personality variables into the study of performance control systems. First, consistent with the idea of selection, employees can select the type of performance control systems they subject themselves to. As a result, these systems can affect employee behavior indirectly by attracting employee types who are predisposed to certain behaviors that are either desirable or undesirable in an organization. Second, even when a performance control system is truly exogenously assigned, consistent with the idea of statistical interaction, the efficacy of the system can depend on the

personality types of employees who are subject to this system. Finally, in environments where managers have discretion over the design and implementation of performance control systems, their personality types and the personality types of their employees can affect how they design and implement these systems through evocation and manipulation.

Section 2.2 summarizes research in psychology that demonstrates the importance of selection, and discusses current research and future research opportunities to investigate the selection effects of performance control systems. Section 2.3 provides an overview of statistical interaction and discusses the implications of statistical interaction for the use of performance control systems in practice. Section 2.4 provides an overview of evocation and manipulation and explores how these two mechanisms can affect the design and implementation of performance control systems. Section 2.5 provides concluding remarks.

2.2 SELECTION

2.2.1 An Overview of Selection

Research suggests that personality types play a significant role in how people select situations. That is, people tend to select situations that are compatible with their personality traits, and avoid situations that are incompatible. As a result, selection is one of the most important and interesting mechanisms through which personality is expressed (Argyle 1977, page 366). For example, in Emmons, Diener, and Larsen (1986), subjects record the situations they encountered over a

30-day period, and indicate whether the situation was imposed or chosen. The authors find that personality traits predict the pattern of which participants choose to spend time in certain situations and avoid other situations. Among other findings, individuals high in extraversion, sociability, and need for affiliation spend a larger percentage of time in chosen social situations and a smaller percentage of time in chosen alone situations. In addition, individuals high in need for achievement and endurance spend a larger percentage of time in chosen work situations.

The effects of personality are not limited to people's choice of everyday situations. Research shows that personality types influence some of the most important choices people make in life. For example, personality affects people's choice of mate. A number of studies have found that people tend to be attracted to and marry others with similar personality traits (e.g., Buss, 1985; Buss and Barnes 1986; Klohnen and Luo 2003; Botwin, Buss and Shackelford 2006; Rushton and Bons 2006). In addition, similarity in personality indeed predicts greater relationship satisfaction (Gonzaga, Campos, and Bradbury 2007; Russell and Wells 1991).

Personality types affect people's choice of where to live. A large literature documents that people in different geographic regions differ in personality (see a review of this literature in Rentfrow, Gosling, and Potter 2008). That is, people with similar personality traits tend to cluster geographically. Theory suggests that these geographical variations can be explained, at least in part, by the tendency of

individuals to migrate to geographical locations with residents who share their personality traits and institutions (e.g. universities, businesses, cultural centers) that support the expression of these traits (Rentfrow et al. 2008).

Personality types influence people's choice of occupation. One of the most influential theories in this area is Holland's theory of occupational choice (Osipow 1990). Holland (1985) argues that people can be classified into six personality types that are important for their vocational choice: realistic (doers), investigative (thinkers), artistic (creators), social (helpers), enterprising (persuaders), and conventional (organizers). Each personality type seeks out and thrives in career environments that are congruent with and support the expression of that personality type. Research suggests that vocational congruence, the degree to which personality types are congruent with career environments, predicts persistence, satisfaction, and stability of career choices (Osipow 1990; Assouline and Meir 1987; Tranberg, Slane, and Ekeberg 1993).

2.2.2 Selection and Performance Control Systems

The idea that employees self-select into different performance control systems is not new. A large literature provides theoretical and empirical support for the premise that performance-based pay attracts individuals with necessary skills to achieve high performance on the compensated task (e.g., Chow 1983; Waller and Chow 1985; Shields and Waller 1988; Dillard and Fisher 1990; Kachelmeier and Williamson 2010; Banker, Lee, Potter, and Srinivasan 2000). While this line of

research examines extensively how task-specific skill influences people's choice of performance control systems, there's a paucity of research investigating the effects of personality types on this important choice.

Prior research suggests that personality plays a significant role in affecting motivation and task performance (e.g., Kanfer and Ackerman1989; Robert and Locke 2004; O'Connor and Paunonen 2007). In today's environment where the technical skills necessary for jobs in many organizations are constantly changing, companies are putting increasing emphasis on attracting personality types with dispositions to work effectively at developing creative solutions to challenging problems (Stillman 2014). Johanna Frelin, CEO of Hyper Island, summarizes the results of an international survey her company conducted as follows: "there is a growing desire for talent with unique combination of skill and flexibility – people who can collaborate, adapt quickly, and are enjoyable company, but also have the drive to get things done. All those traits boil down to a personality that is essential for business operating in an ever-changing digital landscape."

Hales, Wang and Williamson (2014) use an experiment to demonstrate that performance control systems can be designed to attract employees with personality characteristics organizations desire. In particular, the authors use an experiment to show that stock-based compensation relative to fixed pay attracts employees high on dispositional optimism, a personality trait associated with the tendency to expect that good things will happen (Scheier and Carver 1985). They also show that one

benefit of attracting individuals high on dispositional optimism is that these individuals persist longer and are therefore more productive on a challenging task where they face uncertainty as to whether their efforts will lead to high productivity.

In addition to dispositional optimism, research has identified other personality traits that can enhance performance on specific tasks. For example, prior research provides consistent evidence that *openness*, one of the Big Five personality traits, is positively correlated with creative performance (e.g., McCrae 1987; Dollinger, Urban and James 2004; Kachelmeier, Wang and Williamson 2014).[2] To the extent that creativity is an important factor driving a company's competitive advantage in today's business environment, exploring how performance control systems can be designed to facilitate the selection of employees high in openness, and therefore, employees with high creative potential is a worthwhile endeavor.

[2]The Big Five personality traits is a widely accepted taxonomy to classify personality traits into five non-overlapping domains: openness, conscientiousness, extraversion, agreeableness, and neuroticism (McCrae and Costa 1996). John, Naumann and Soto (2008) provide a brief description of each domain. Openness describes the "breadth, depth, originality, and complexity of an individual's mental and experiential life." Conscientiousness describes "socially prescribed impulse control that facilitates task- and goal-directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks." Extraversion implies "an energetic approach toward the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality." Agreeableness "contrasts a prosocial and communal orientation toward others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty. Finally, neuroticism contrasts "emotional stability and even-temperedness with negative emotionality, such as feeling anxious, nervous, sad, and tense."

Other personality traits can also be attracted to widely used performance control systems such as team performance contract, relative performance contract, target-based pay, and subjective performance evaluation. Personality traits attracted to these systems may or may not be desirable. Current research primarily focuses on the direct performance effect of these systems. Future research can examine the personality traits attracted to these widely used performance control systems and the performance implications (both positive and negative) of attracting these personality traits.

2.3 STATISTICAL INTERACTION

2.3.1 An Overview of Statistical Interaction

Personality traits are not only expressed in how people select situations, they are also expressed in how people respond to exogenously assigned situations. A stream of research that models human behavior as a function of the person, the situation, and their interaction term demonstrates this point well. When modeling behavior taking this approach, variance in behavior is partitioned into three categories: variance accounted for by the person, the situation, the statistical interaction between the two. Studies taking this approach consistently conclude that the interactional component accounts for the greatest proportion of variance (see reviews in Bowers 1973, Ekehammar 1974, and Endler and Magnusson 1976).[3]

[3] For example, in a study of dominant behaviors by Dworkin and Kihlstrom (1978), the effect of the person, the situation, and the person-situation interaction accounted for about 10%, 8%, and 24%, respectively.

The results of these studies suggest that people with different personality types often respond quite differently to situations that are commonly assigned. For example, in a classic study that examines the effect of ambient stimulation on cognitive performance, ambient stimulation increases cognitive performance for extraverts and decreases cognitive performance for introverts (Eysenck 1981).[4] As another example, Tepper, Duffy, and Shaw (2001) find that employees high in conscientiousness are more likely than those low in conscientiousness to respond to abusive supervision with *constructive* resistance. However, employees low in conscientiousness are more likely than those high in conscientiousness to respond to abusive supervision with dysfunctional resistance.

2.3.2 Statistical Interaction and Performance Control Systems

Consistent with the idea of statistical interaction, the efficacy of exogenously assigned performance control systems can depend on personality types of employees who are subject to these systems. To the extent personality types cluster at the industry, firm or team level due to selection, it is important for managers to consider the unique characteristics of their workforce in designing and implementing performance control systems. There is some albeit limited research on statistical interactions between personality types and commonly used performance control systems in practice. Brownell (1981) find that locus of control,

[4] Extraversion (introversion) is one of the Big Five personality traits.

the extent to which individuals feel that they have control over events affecting them, moderates the relation between participatory budgeting and participants' performance on a decision-making task. In particular, budgetary participation improves task performance for participants with an internal locus of control (i.e., those who feel that they have control over their destinies), and it decreases task performance for participants with an external locus of control (i.e. those who feel that their destinies are controlled by environmental factors).

Future studies can examine how other personality traits affect the efficacy of commonly adopted performance control systems. For example, one extensively studied topic in management accounting and other disciplines is the effect of assigned goals on task performance. One of the most robust findings from this literature is that challenging but achievable (i.e. stretch) goals lead to higher performance than easy goals (Bonner and Sprinkle 2002; Sprinkle and Williamson 2007). However, whether goals are achievable is a matter of subjective opinion. It can be influenced by personality traits such as dispositional optimism. To the extent that people low in dispositional optimism tend to think that challenging goals are unachievable, they will lose motivation and disengage from the task (Garland 1984). As a result, in stark contrast to the widely held belief that challenging goals enhance motivation and performance, they may be demotivating for individuals low on dispositional optimism. Future research can provide empirical support for this argument.

Another interesting personality variable that can potentially interact with the effects of assigned goals and targets is dispositional goal orientation. Dweck (1986) suggests that people adopt either a learning or a performance orientation toward tasks. Individuals with a learning orientation seek to increase their competence. Individuals with a performance orientation seek to perform well on the task in order to gain favorable judgment. Webb, Williamson, and Zhang (2013) find that although participants assigned to a challenging goal spend more time learning (i.e., looking for shortcuts that increase production efficiency), their learning is less efficient (i.e., they find fewer shortcuts per unit of time spent looking for shortcuts). They attribute this result to the pressure associated with meeting a challenging target. Future research can investigate whether individuals with a learning orientation respond to challenging goals differently from individuals with a performance orientation in terms of their willingness to invest in learning and the efficiency with which they learn.

2.4 EVOCATION AND MANIPULATION

2.4.1 An Overview of Evocation and Manipulation

Finally, individuals do not have to accept situations as selected or given, they often can change these situations through evocation or manipulation. Buss (1987) defines evocation as "the actions, strategies, reputations, and coercions that are consistently and predictably elicited by individuals, or more precisely, by relatively enduring features of those individuals." An important aspect of evocation

is that it happens without intention (Buss 1987). That is, people change their environment by evoking responses from others without intending to do so. Stereotyping based on gender, race, or ethnicity is a salient example of evocation. Here, physical attributes associated with certain social categories evoke judgments and responses from others without any intention from the person being judged and sometimes the person judging (Kihlstrom 2010). For example, a female walking into a meeting room full of male participants changes the dynamics of the environment without any intention from the female participant. Personality traits also initiate evocation. For example, highly active children elicit control behaviors from parents intended to reduce noise and intensity (e.g., Bel 1968; Buss 1981), and competitive individuals elicit competitive behaviors from others even when others are cooperative in nature (e.g., Kelly and Stahelski 1970).

Manipulation is another mechanism through which people can change their environment after an environment has been imposed or chosen. Buss (1987) defines manipulation as "the ways in which individuals intentionally alter, change, influence, or exploit others." He argues that from an evolutionary perspective, individuals who are successful at manipulating their environments to gain desirable responses survive and thrive. As a result, manipulation is an important mechanism through which human beings (and other species) interact with both their physical and social environments. The effect of one's personality type on his/her manipulation style is a topic investigated in developmental and education

psychology. These studies show that parent and teacher personality traits affect their parenting and teaching style (e.g. Hunt and Joyce 1967; Mondell and Tyler 1981).

2.4.2 Evocation, Manipulation and Performance Control Systems

Both evocation and manipulation can be incorporated into the study of performance control systems. In environments where managers have discretion over the design and implementation of performance control systems, their personality types can directly affect the design and implementation of these systems through manipulation. Additionally, employee personality types can evoke performance control responses from managers through evocation.

For example, Falk and Kosfeld (2006) find that when managers have discretion over whether to implement a minimum performance requirement, their choice to control can be costly because most employees reduce their efforts to the minimally required level in response to the manager's decision to control. While the authors show that managers vary in their decision to control or trust when they are given this discretion, the authors stop short of identifying the source of this variation. Given that managers in their experiment face the same financial incentives and other environmental factors, manager personality types can be a potential driver of this variation.

Psychologists have long recognized that people exhibit persistent differences in their social value orientation: some have strong self-regarding

preferences (pro-self types), and others have strong other-regarding preferences (pro-social types).[5] Research also suggests that people with different social value orientation differ in their expectation of others. The triangle hypothesis suggests that because pro-self individuals tend to provoke pro-self behaviors from others, they tend to view others as homogeneously pro-self. In contrast, pro-social individuals tend to hold a more heterogeneous view of others. Although they exhibit a greater tendency to believe that others are pro-social, they also acknowledge that people can be pro-self. As a result, they develop better skills reading signals indicating whether other people are pro-social or pro-self (e.g., Kelly and Stahelsk 1970; Bogaert et al. 2008).

The triangle hypothesis suggests that pro-self managers would be more likely to implement minimum performance requirement irrespective of the social value orientation of their employees. In contrast, pro-social managers are more likely to respond to the pro-social or pro-self signals from their employees in deciding whether to implement formal or trust-based controls. In other words, employees' social value orientation are more likely to evoke appropriate performance control responses from pro-social managers than from pro-self managers. Results supporting the triangle hypothesis in the performance control

[5] See a review of research on social value orientation in Bogaert, Boone and Declerck (2008).

context can have important implications for whether and to whom control discretion should be given in organizations.

Manager personality types do not only have the potential to affect how closely they control employee performance, their personality types can also affect how much they monitor and override employee decisions. For example, Licata, Strawser, and Welker (1986) provide experimental evidence that managers with an external locus of control override/monitor subordinates' self-determined performance target to a greater extent than managers with an internal locus of control. Campbell, Epstein and Martinez-Jerez (2011) find in a field-research setting that the "tightness" with which employee decisions are monitored adversely affect employees' willingness to use decision-rights. Consequently, employees whose decisions are tightly monitored experience less learning than those whose decisions are loosely monitored. Future research can more directly study the effects of manager personality types on the design and implementation of decision management and control systems, which, in turn, can have a significant impact on organizational learning.

2.5 CONCLUSION

In this chapter, drawing on psychology theories, I first describe several mechanisms through which personality types and environmental variables interact to affect human behaviors. Based on these mechanisms, I propose a framework for incorporating personality variables into the study of performance control systems.

First, consistent with the idea of selection, employees can select the type of performance control systems they subject themselves to. As a result, these systems can affect employee behavior indirectly by attracting employee types who are predisposed to certain behaviors that are either desirable or undesirable in an organization. Second, even when a performance control system is truly exogenously assigned, consistent with the idea of statistical interaction, the efficacy of the system can still depend on the personality types of employees who are subject to this system. Finally, in environments where managers have discretion over the design of and implementation of performance control systems, their personality types and the personality types of their employees can affect how they design and implement these systems through evocation and manipulation.

In Chapter 3 of this dissertation, I report an experiment to highlight the implications of one component of this framework: the efficacy of exogenously assigned performance control systems can depend on the personality types of employees who are subject to these systems. In particular, I examine the effects of a widely adopted performance control system - programs that offer employees nonpecuniary recognition based on measures of relative performance. I provide theories and empirical results to show that the efficacy of this particular form of performance control system depends on where employees fall on the Dark Triad scale.

Chapter 3: Recognizing the Best: The Productive and Counterproductive Effects of Relative Performance Recognition

3.1 INTRODUCTION

Many organizations recognize employees based on measures of relative performance (Frey 2007). For example, organizations can recognize outstanding performers relative to their peers with private notes or emails, special ceremonies, or by publishing their achievements in company newsletters. These recognitions are sometimes symbolic and come with minimal or no corresponding financial rewards. Proponents of programs that offer employees nonpecuniary recognition based on measures of relative performance (hereafter, recognition programs) argue that they are a cost efficient yet highly effective way of motivating employees (Luthans 2000). In support of this argument, prior studies in accounting provide experimental and field evidence suggesting that relative performance information such as that provided by recognition programs increases productive efforts even when it is not tied to pecuniary rewards (e.g., Hannan, Krishnan, and Newman 2008; Tafkov 2013; Gallani, Takehisa, and Krishnan 2013). However, opponents argue this benefit comes at a cost. Among other things, recognition programs rupture relationships and lead to counterproductive efforts intended to reduce the performance of fellow employees (Kohn 1993). In practice, these behaviors can range from refusing to offer help to intentionally destroying tools or information needed by other employees to complete their task.

Motivated by these opposing views, I examine the effects of recognition programs in an environment where individuals can engage in both productive *and* counterproductive activities. In such an environment, whether recognition programs produce mainly a productive or counterproductive effect can depend on important employee characteristics. I investigate this possibility. That is, I examine whether individuals with certain characteristics are more likely to respond to recognition programs by increasing productive efforts intended to improve their own performance and whether others are more likely to respond by increasing counterproductive efforts intended to undermine the performance of their peers.

Research identifying how employee characteristics predictably influence employees' response to recognition programs is important because it highlights the need for managerial accountants to consider the unique characteristics of their workforce in determining whether to provide these programs. Based on theories developed in personality psychology, I identify the Dark Triad of personality traits as an important individual characteristic that can interact with recognition programs in interesting and counterintuitive ways to influence employees' productive and counterproductive efforts. Personality traits refer to enduring individual differences in thoughts, feelings, and behaviors (McCrae and Costa 1996). In particular, the Dark Triad of personality traits is a combination of three personality traits: Machiavellianism, narcissism, and psychopathy. All three traits are associated with behavioral tendencies characterized by elevated concerns for self-

advancement and minimal concerns for maintaining positive relationships (Jones and Paulhus 2010). These tendencies lead individuals high on the Dark Triad to respond to recognition programs in markedly different ways than those low on the Dark Triad.

In particular, I develop theories suggesting that the effect of recognition programs on productive efforts is more pronounced for individuals *high* on the Dark Triad than for individuals *low* on the Dark Triad. Due to their heightened desire for self-advancement, individuals high on the Dark Triad are particularly concerned about their relative competence. As a result, I predict that those high on the Dark Triad value recognition more than those low on the Dark Triad and therefore, are relatively more motivated by the chance of receiving recognition to work harder and perform better.

While common intuition may suggest that individuals high on the Dark Triad may also be relatively more likely to engage in counterproductive behaviors to increase their own chance of receiving recognition, I develop theories that suggest the opposite. Specifically, I develop theories suggesting that the effect of recognition programs on counterproductive efforts is more pronounced for individuals *low* on the Dark Triad than those *high* on the Dark Triad.

Due to their lack of concern for maintaining positive relationships, individuals high on the Dark Triad tend to expect relatively high levels of counterproductive efforts from others and exert high levels of counterproductive

efforts themselves *regardless* of whether recognition programs are provided. In contrast, individuals low on the Dark Triad are relatively more sensitive to situational factors such as recognition programs in terms of how much counterproductive efforts they expect from others. Recognition programs, by putting them in a competitive environment, increase the amount of counterproductive efforts they expect from others. Expecting more counterproductive efforts from others can lead them to exert more counterproductive efforts themselves due to an innate desire to engage in negative reciprocity. As a result, I predict that individuals low on the Dark Triad would increase their counterproductive efforts more in response to recognition programs than those high on the Dark Triad.

I use an experiment to test these predictions. In my experiment, I assign participants to groups of three and ask them to work on a letter-search task individually. The task requires participants to count the number of a specific letter (the search letter) in a box of letters called a search box. Participants count as many search boxes as they can in a ten-minute window and earn one point for each correctly counted box. The number of boxes participants correctly count captures participants' productive efforts as the experimental task is designed to be effort sensitive. To create a laboratory environment where participants can exert counterproductive efforts to undermine the performance of their peers, I allow participants to take away (i.e., destroy) between zero and ten points from each of

their two group members anonymously. As each participant's individual performance is calculated as the number of boxes he/she correctly counts minus the number of points his/her peers take away, the number of points each participant takes away from his/her group members captures counterproductive efforts intended to reduce peer performance. All participants are paid a piece-rate pay based on their individual performance.

I manipulate the presence or absence of a nonpecuniary recognition program. I recognize the group member with the highest individual performance in each group in the Recognition condition. No recognition is promised or given in the No Recognition condition. I measure participants' Dark Triad personalities using the 12-item Dark Triad personality questionnaire developed and validated by Jonason and Webster (2010).

I find that although recognition programs increase both productive and counterproductive efforts in the aggregate, they increase productive efforts relatively more for individuals high on the Dark Triad, and increase counterproductive efforts relatively more for individuals low on the Dark Triad. In fact, in my experiment, participants high on the Dark Triad respond to the recognition program by increasing *only* their productive efforts whereas those low on the Dark Triad respond to the recognition program by increasing *only* their counterproductive efforts.

In addition, results of my supplemental analyses indicate that participants high on the Dark Triad enjoy the experimental task *more* when a recognition program is provided. In stark contrast, participants low on the Dark Triad enjoy the experimental task *less* when a recognition program is provided. Together, these results suggest that people high and low on the Dark Triad experience the same recognition program in markedly different ways. The patterns of their responses to recognition programs in terms of productive efforts, counterproductive efforts, and task enjoyment consistently suggest that providing recognition programs to a workforce high on the Dark Triad are likely to produce positive firm outcomes while providing the same programs to a workforce low on the Dark Triad are likely to produce negative firm outcomes.

This study adds to the growing body of research in accounting on the performance effects of relative performance information (e.g., Hannan et al. 2008; Tafkov 2013; Gallani et al. 2013). This body of literature focuses mainly on the productivity-enhancing effect of relative performance information. Overall, these studies provide evidence suggesting that relative performance information motivates performance even when it is not tied to monetary reward.[6] My study adds to this literature by highlighting that relative performance information also motivates counterproductive efforts even when this information is not associated

[6] One exception is Hannan, McPhee, Newman, and Tafkov (2013). Hannan et al. (2013) show that relative performance information distorts effort allocation among tasks in a multi-task environment.

with financial rewards. As a result, whether relative performance information produces a net positive or negative outcome depends on whether the productive or counterproductive effect dominates. I identify an important employee characteristic, the Dark Triad of personalities, that influences the relative magnitude of the productive and counterproductive effect.

The results of my study have important implications for the use of recognition programs in practice. Prior studies suggest that entertainment and marketing jobs attract people high on the Dark Triad (e.g., Young and Pinsky 2006; Mclean and Jones 1992). To the extent that personality traits in general and the Dark Triad of personalities in particular cluster at the industry, company or team level, my results highlight the need for managerial accountants to consider the unique characteristics of their workforce in determining whether to provide recognition based on measures of relative performance.

In the next section, I develop my hypotheses. I describe the experiment in Section 2.2, present the results in Section 2.3, and provide concluding remarks in Section 2.4.

3.2 THEORY AND HYPOTHESES

3.2.1 The Dark Triad of Personalities

I examine whether the effects of programs that award employees nonpecuniary recognitions based on measures of relative performance depend on

an important employee characteristic, the Dark Triad of personalities.[7] I focus on the Dark Triad of personalities because its associated behavior tendencies can influence how people respond to recognition programs and the predicted patterns of responses provide important implications for the use of recognition programs in practice.

The Dark Triad of personalities has attracted increasing research interests over the last decade (Jonason and Webster 2010). It includes three conceptually distinct, but empirically overlapping personality traits: Machiavellianism, narcissism, and psychopathy (Paulhus and Williams 2002). Machiavellianism is characterized by strategic manipulation and exploitation of others (Christie and Geis 1970); Narcissism is associated with a sense of grandiosity, entitlement, dominance, and superiority (Raskin and Hall 1979); Psychopathy is characterized by high impulsivity, thrill-seeking and low-empathy and anxiety (Hare 1985; Lilienfeld and Andrews 1996). Despite the traits' separate origins, individuals high on these traits exhibit similar interpersonal behavioral tendencies characterized by elevated concerns for self-advancement and minimal concerns for maintaining positive relationships (Jones and Paulhus 2010). These behavior tendencies can

[7] I focus on recognition programs based on measures of relative performance as these programs are common in practice (Kohn 1993). However, other forms of recognition programs such as those that recognize employees for achieving individual performance goals are also widely used and are interesting constructs for future research.

lead individuals high on the Dark Triad to respond to recognition programs in markedly different ways than those low on the Dark Triad.[8]

3.2.2 Recognition Programs and Productive Efforts

Studies in accounting draw on social comparison theory to predict that recognition programs can increase productive efforts even when recognition is not tied to monetary rewards (e.g., Hannan et al. 2008; Tafkov 2013; Gallani et al. 2013).[9] Social comparison theory argues that people have an innate desire to compare one's own performance to that of similar others to evaluate their own ability (Festinger 1954; Suls and Wheeler 2000). Self-enhancement is one of the main motives why people engage in social comparisons (e.g., Gibbons and Bunk 1999).[10] That is, people engage in social comparison to enhance their self-esteem. Comparing favorably in ability to others increases one's self-esteem and produces positive affect while comparing unfavorably to others damages one's self-esteem

[8] Other accounting researchers have also recently investigated the influence of the Dark Triad of personalities or its components on accounting decisions and task performance (e.g., Murphy 2012; Hales, Hobson, and Resuteck 2012; Brown, Rennekamp, Seybert, and Zhu 2013; Dworkis 2013; Majors 2014).

[9] Tournament theory examines the incentive effects of compensation contracts based on relative performance information (e.g., Lazear and Rosen 1981, Green and Stokey 1983, Nalebuff and Stiglitz 1983, and Antle and Smith 1986). However, social comparison theory compliments tournament theory in suggesting that winning a tournament can provide positive utility even when winning is not tied to financial rewards. As a result, prior studies in accounting primarily use social comparison theory to make predictions about how relative performance information affects individual efforts and task performance.

[10] Theorists have generally identified and accepted three underlying motives of social comparison: self-evaluation, self-improvement, and self-enhancement (Wood 1989; Taylor, Wayment, and Carillo1995; Gibbons and Buunk 1999). That is, people engage in social comparison to evaluate one's own ability, to improve his/her ability, and to enhance self-esteem.

and produces negative affect (Tesser and Campbell 1980; Tesser, Millar, and Moore 1988).

Recognition programs, by awarding recognition based on measures of relative performance, make social comparison possible and salient. In this environment, receiving recognition provides a positive signal about one's competence relative to others. This signal enhances self-esteem and induces positive affect. As a result, when a recognition program is provided, individuals are motivated to work hard in order to increase their chance of receiving recognition. Consistent with this argument, Tafkov (2013) and Hannan et al. (2008) find that relative performance information such as that provided by recognition programs motivates individual efforts and increases task performance under different pay schemes that are not tied to relative performance ranking (e.g., fixed or piece-rate pay).

However, the Dark Triad of personalities can moderate the effect of recognition programs on productive efforts. Due to their elevated concerns for self-advancement, individuals high on the Dark Triad are particularly concerned about their competence relative to their peers when placed in a competitive environment where social comparison is salient (Jonason, Li, and Teicher 2010; Furtner, Rauthmann, and Sachse 2011). As a result, they tend to value recognition, a signal of relative competence, more than those low on the Dark Triad. Consequently, when provided with a recognition program, they are more motivated by the chance

of receiving recognition to work harder and perform better than those low on the Dark Triad. I test the following hypothesis:

> **H1:** The effect of recognition programs on productive efforts is more pronounced for individuals *high* on the Dark Triad than for individuals *low* on the Dark Triad.

3.2.3 Recognition Programs and Counterproductive Efforts

The effect of recognition programs on counterproductive efforts can also be different for individuals high and low on the Dark Triad. While common intuition may suggest that individuals high on the Dark Triad are relatively more likely than those low on the Dark Triad to engage in counterproductive behaviors in order to increase their own chance of receiving recognition, I develop theories below that suggest the opposite.

In particular, due to their lack of concern for maintaining positive relationships, individuals high on the Dark Triad are antagonistic toward others and expect others to be antagonistic toward them in most interpersonal situations (e.g., Paulhus and Williams 2002; Jones and Figueredo 2012). Consequently, they tend to expect high levels of counterproductive efforts from others and exert high levels of counterproductive efforts themselves as long as opportunities to undermine each other's performance exist. They take this antagonistic approach regardless of whether a recognition program is provided.

In contrast, individuals low on the Dark Triad are not likely to be antagonistic in non-competitive situations. However, recognition programs put

them in a competitive environment. Competition makes people suspicious of others (e.g., Deutsch 1949, 1973, 1985; Johnson and Johnson 1975; Amir 1976; Dunn and Schweitzer 2004). Morton Deutsch, one of the founding fathers of the field of conflict resolution, explains the effect of competition as follows:

> In a competitive relationship, one is predisposed to cathect the other negatively, to have a suspicious, hostile, exploitative attitude toward the other, to be psychologically closed to the other, to be aggressive and defensive toward the other, to seek advantage and superiority for self and disadvantage and inferiority for the other, to see the other as opposed to oneself and basically different, and so on. One is also predisposed to expect the other to have the same orientation (Deutsch 1985).

Consequently, by putting individuals low on the Dark Triad in a competitive environment, recognition programs can lead them to expect more counterproductive efforts from their peers. This in turn can cause them to increase their own counterproductive efforts due to a desire to reciprocate negative actions with negative actions. Negative reciprocity has been widely documented in experiments (e.g., Camerer and Thaler 1995; Fehr and Gächter 2000; Sprinkle and Williamson 2007) as well as in field studies and surveys (e.g., Robinson and Bennett 1995; Uhl-Bien and Maslyn 2003). Therefore, while I expect recognition programs to have a relatively small effect on the counterproductive efforts of individuals high on the Dark Triad, I expect a bigger effect for those low on the Dark Triad. This prediction is broadly consistent with the results of Brown et al. (2013) which suggest that certain environmental factors can lead "good people" to do "bad things." Therefore, I test the following hypothesis:

H2: The effect of recognition programs on counterproductive efforts is more pronounced for individuals *low* on the Dark Triad than for individuals *high* on the Dark Triad.

3.3 METHOD

3.3.1 Participants and Design

Seventy-six undergraduate and graduate business students participated and completed my experiment. The average participant was about 21 years old, and approximately 47 percent of the participants were male.

In natural settings, recognition can be conveyed to employees either privately or publicly. For example, organizations can recognize outstanding performers privately with private notes or emails or publicly by holding special ceremonies or publishing their achievements in company newsletters. The theories underlying H1 and H2 apply to both private and public recognition programs. Nevertheless, to ensure that results are robust to the form of recognition, I manipulate Recognition Program at three levels: No Recognition, Private Recognition, and Public Recognition. Participants in the No Recognition condition were not promised or provided recognition. Participants in the Private and Public Recognition conditions were promised and provided private or public recognition not tied to financial rewards.

3.3.2 Experimental Procedures

The experiment was conducted using z-Tree software (Fischbacher 2007). As participants arrived, they were randomly assigned to the No Recognition

condition or one of the two Recognition conditions. Within each condition, the z-Tree program randomly assigned participants to groups of three.[11] Participants were told they would earn points working independently on an experimental task. They were also told that they would be paid a show-up fee of $10.00 and $0.25 for each point they had remaining at the end of the experiment.[12]

Participants then learned whether the top performer in his/her group would be recognized and if so whether the recognition would be conveyed privately or publicly. Participants in the Private Recognition condition were told "the participant with the highest individual performance in each group will be notified and recognized privately. That is, you will be notified if you achieve the highest individual performance in your group by a private computer message." Participants in the Public Recognition condition were told "the participant with the highest individual performance in each group will be notified and recognized publicly. That is, you will be notified if you achieve the highest individual performance in your group, and you will stand up to be applauded by other participants for this achievement." Participants in the No Recognition condition were told "the

[11] Participants were told that in case the number of participants in the room was not divisible by three, one group could have four or five participants.

[12] Participants were paid a piece-rate pay. Tafkov (2013) finds that the effect of relative performance information on task performance is greater under piece-rate pay than under fixed wage pay. As a result, a piece-rate pay scheme provides the most powerful pay structure under which to examine the effect of recognition programs on productive efforts and the moderating role of the Dark Triad of personalities.

participant with the highest individual performance in each group will not be notified or recognized."

Because participants are paid a piece-rate pay based on their individual performance, their compensation is not influenced by whether or not they receive recognition. There are two reasons for this design choice. First, this study is motivated by the observation that many organizations award employees recognition with minimal or no corresponding financial rewards. Although opponents argue that recognizing employees based on measured of relative performance can lead them to engage in activities intended to undermine the performance of their peers (Kohn 1993), no research has shown that recognition programs not associated with financial rewards can lead to these counterproductive behaviors. Second, although the psychological processes I test likely exist under recognition programs with financial rewards, non-financial recognitions provide the most powerful setting to test these processes. That is, without the influence of financial rewards that increase productive and counterproductive efforts in all conditions, it is easier to statistically detect differences caused by the theorized psychological processes.

After participants learned about their assigned recognition condition, they were informed of the opportunity to undermine the performance of their group members by taking points away from them. I use the number of points they take away from their group members to capture their intended counterproductive efforts. In particular, participants were told "participants who worked on the experimental

task in prior sessions earned on average 50 points, but individual performance varied greatly. Before you work on this challenging experimental task, you will be given the opportunity to reduce (in advance) the point total of each of your group members by up to 10 points."

All participants were clearly informed of the consequences of taking points away from their group members before they made the decision. Participants in the Recognition conditions were told "this decision reduces the points and compensation of your group members without increasing your own. However, it increases your chance of being the top performer and, thus, receiving recognition." Participants in the No Recognition condition were told "this decision reduces the points and compensation of your group members without increasing your own. However, as just described, the participant with the highest individual performance in each group will not be notified or recognized."

I made two design choices related to the measure of counterproductive efforts. First, I do not impose a cost on counterproductive efforts. That is, participants' own compensation is not affected by the number of points they take away from their group members. Imposing a financial cost will likely reduce counterproductive efforts in all conditions. Since there is no theory to predict that a financial cost associated with taking points away would affect participants high on the Dark Triad differently than those low on the Dark Triad, this design choice enhances power without inducing a bias.

Second, participants decided how many points to take away from their group members before they learned about the experimental task. This design choice ensures that participants' performance or expected performance on the experimental task has no way of affecting the number of points they take from their group members, giving me a more powerful setting to test the effect of recognition programs on counterproductive efforts. In natural settings, however, employees can engage in counterproductive activities before, during, or after the task. To the extent that employees view productive and counterproductive efforts as substitutes, their performance on the task can affect their decision to engage in counterproductive activities. However, my data shows that the number of points participants take away from their group members is not correlated with the number of boxes they count correctly in the full, the high Dark Triad, or the low Dark Triad subsamples ($p = 0.94$, 0.84, and 0.68, respectively, untabulated), suggesting that participants do not act as if taking points away and working hard on the task are substitutes. As a result, it is unlikely that changing the order of the productive and counterproductive decisions would change the pattern of my results.[13]

[13] However, there still remains the possibility that participants would view the productive and counterproductive efforts as substitutes if they were to work on the experimental task first prior to making the counterproductive decision. Future research can examine this possibility and investigate the circumstances under which people are more likely to view productive and counterproductive efforts as different means to the same end.

After participants decided how many points to take away from each of their group members, they were introduced to the experimental task-a letter search task.[14] Each participant received a "Production" envelope containing 15 pages. On each page, there were 8 boxes of random letters. Each box had a single letter (the search letter) in the top right hand corner. Below the search letter was a 3-row by 18-column block of letters. Participants were asked to determine the number of times the search letter appeared in the corresponding box of letters and enter the answer in a computer spreadsheet. They were asked to count and enter the answers for as many search boxes as they can in a ten-minute production period. Participants then practiced the task for two minutes without earning any points and worked on the task for ten minutes to earn points.

After participants completed the task, they answered post experimental questions about the experimental task and completed a Dark Triad questionnaire. I measure the Dark Triad of personalities using the 12-item questionnaire developed and validated by Jonason and Webster (2010). Participants were asked whether they agree or disagree with these items using a seven-point Likert scale with "1" labeled "strongly disagree" and "7" labeled "strongly agree" (see Appendix A). I assign participants scoring at or above the median on this questionnaire to the high Dark Triad subsample and the remaining participants to the low Dark Triad subsample.

[14] Variations of the letter-search task have been used in accounting studies to examine the effects of different management control and incentive systems on task performance (e.g., Sprinkle et al. 2008; Webb et al. 2013; Kachelmeier et al. 2013)

Consequently, I expect participants in the high Dark Triad subsample to exhibit more Dark Triad behavioral tendencies on average than participants in the low Dark Triad subsample.

After participants answered these questions, the top performer of each group was recognized (or not recognized) according to his/her assigned recognition condition. Then all participants were paid and dismissed. Table 1 summarizes the sequence of steps completed by participants during the experiment. The experiment used no deception of any kind.

3.4 RESULTS

3.4.1 Summary Statistics

Table 2 presents summary statistics for the number of boxes participants correctly count (productive efforts) and number of points they take away from their group members (counterproductive efforts) by recognition condition. In the full sample, based on means reported in Table 2, although recognition programs seem to increase both productive and counterproductive efforts, the form of recognition (private or public) does not seem to make a difference. To increase power, I combine the Private and Public Recognition conditions and compare the No Recognition condition to the combined Recognition condition for all main hypothesis tests. In supplemental analyses, I demonstrate that results are robust to whether recognition is provided privately or publicly.

Because the Dark Triad scores are collected at the end of the experiment, prior to testing the main hypotheses, I perform tests to ensure that these scores are not influenced by the experimental manipulation or decisions made by participants earlier in the experiment.[15] First, I check to see whether the recognition manipulation influences how participants respond to the Dark Triad questionnaire. In theory, because the Dark Triad questionnaire measures stable personality traits, and this measure has been shown to be stable over time (Jonason and Webster 2010), the recognition manipulation should not have affected the measure. Consistent with this argument, the Dark Triad scores in the No Recognition condition and those in the Recognition condition do not differ ($p = 0.55$, two-tailed).[16] As a result, the Dark Triad measure is theoretically and empirically independent from the recognition manipulation.[17]

3.4.2 Test of Hypothesis 1

H1 examines whether and how the Dark Triad of personalities moderates the effect of recognition programs on productive efforts. To reduce noise, I use the

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[15] As shown in Table 1, participants complete the Dark Triad questionnaire after being introduced to the recognition manipulation and after they make both the counterproductive and productive decisions. However, they complete the questionnaire before they receive recognition and performance feedback.

[16] Dark Triad scores range from 1.25 to 5.83, with a mean of 3.36 and a median of 3.50. The Shapiro-Wilk test of normality indicates that participants' Dark Triad scores are normally distributed (Shapiro and Wilk 1965).

[17] In addition, the correlation between counterproductive efforts and Dark Triad scores for the full sample is insignificant ($p = 0.48$). Therefore, it is unlikely that participants' decisions to take points away from their group members have influenced how they responded to the Dark Triad questionnaire.

ranked number of search boxes participants correctly count as the primary measure of productive efforts (Ranked Correct). I rank-order participants based on the number of boxes they correctly count. The participant with the lowest number receives the lowest rank and the participant with the highest number receives the highest rank. Thus, higher ranks indicate greater productive efforts. To test H1, I conduct an ANCOVA using Ranked Correct as the dependent variable, Recognition Program (No Recognition vs. Recognition) and Dark Triad (high Dark Triad vs. low Dark Triad) as dependent variables, and English as a covariate. I set English to one if a participant speaks English as his/her first language and zero otherwise. I use English to control for the variation in participants' ability to quickly identify English alphabetic letters.

Figure 1 presents mean Ranked Correct by condition and Table 3 presents the results of the ANCOVA. English has a marginally significant effect on Ranked Correct ($t = 1.67$, $p = 0.10$, two-tailed). Controlling for English, Recognition Program has a main effect on Ranked Correct ($t = 1.65$, $p = 0.05$).[18] This main effect suggests that recognition programs motivate productive efforts on average, consistent with arguments made by proponents of recognition programs. However, this main effect is qualified by a marginally significant interaction with Dark Triad ($t = 1.54$, $p = 0.06$), indicating that the effect of Recognition Program on Rank

[18] Because of the directional nature of my predictions, all reported p-values are one-tailed, unless otherwise indicated.

Correct is greater for participants high on the Dark Triad than those low on the Dark Triad. Panel C of Table 3 reports follow-up analyses of this interaction. Recognition Program increases Ranked Correct within the high Dark Triad subsample ($t = 2.17$, $p = 0.02$), but it does not have a significant effect on Ranked Correct within the low Dark Triad subsample ($t = 0.10$, $p = 0.46$). Together these results suggest that recognition programs increase productive efforts more for individuals high on the Dark Triad than for individuals low on the Dark Triad, consistent with H1.

3.4.3 Test of Hypothesis 2

3.4.3.1 Main Analyses for Hypothesis 2

H2 examines whether and how the Dark Triad of personalities moderates the effect of recognition programs on counterproductive efforts. An examination of the distribution of the number of points participants take away from their group members indicates that 87% of all participants take away either zero (45%), five (24%) or ten (18%) points, making the dependent variable for this analysis effectively a three-level categorical variable. As ANOVA is inappropriate for analyzing categorical dependent variables, I estimate an ordered logistic regression to test H2. An ordered logistic regression is appropriate when the dependent variable is categorical and takes on values that have a natural order (Kennedy 2008).

I use Points Taken as the main dependent variable. It is set to one if a participant takes away zero point (no point), two if a participant takes away between

one and nine points (some points) and three if a participant takes away the maximum ten points (maximum points).[19] The three independent variables for the ordered logistic regression are: Recognition Program (No Recognition = -1 and Recognition =1), Dark Triad (low Dark Triad = -1 and high Dark Triad = 1), and Recognition Program × Dark Triad. I use effect coding for the ordered logistic analysis so that results can be interpreted similarly to results from an ANOVA. Specifically, the coefficients on Recognition Program and Dark Triad can be interpreted as the main effects of these variables, and the coefficient on Recognition Program × Dark Triad can be interpreted as the interaction effect.

Figure 2 presents the raw number of points taken by condition and Table 4 presents the results of the ordered logistic regression. As reported in Panel B of Table 4, the coefficient on Recognition Program is positive and significant ($z = 2.45$, $p < 0.01$), suggesting that recognition programs increase the likelihood of higher levels of counterproductive efforts, consistent with arguments made by opponents of recognition programs. More importantly, the coefficient on Recognition Program × Dark Triad is marginally significant ($z = 1.59$, $p = 0.06$), providing some evidence that the effect of recognition programs on counterproductive efforts is greater for participants low on the Dark Triad than for those high on the Dark Triad. Panel C Table 4 reports results of separate ordinal

[19] Keeping Points Taken at 11 levels (between zero and ten) or dropping participants who take away neither zero, five or ten points provides qualitatively similar results.

logistic regressions for the high and low Dark Triad subsamples. For the low Dark Triad subsample, Recognition Program is positively associated with higher values of Points Taken ($z = 2.81$, $p < 0.01$). However, for the high Dark Triad subsample, this relation is insignificant ($z = 0.62$, $p = 0.27$). These results provide some initial evidence suggesting that in response to a recognition program, individuals low on the Dark Triad are more likely to increase their counterproductive efforts than individuals high on the Dark Triad, consistent with H2.

3.4.3.2 Additional analyses for Hypothesis 2

In addition, I test whether recognition programs lead people to expect more counterproductive efforts from their team members, and whether this effect is more pronounced for those low on the Dark Triad than those high on the Dark Triad as predicted by my theories. Participants are asked to indicate the extent to which they agree with the following statement in the post experimental questionnaire, "I think my group members took many points away from me on the letter-search task" on a seven-point Likert scale (Others Took Points). As expected, Others Took Points is positively correlated with Points Taken in both the high and low Dark Triad subsamples ($p < 0.01$, untabulated), suggesting that the more counterproductive efforts people expect from others the more they engage in counterproductive efforts themselves regardless of their level of Dark Triad personality traits.

I then estimate an ordered logistic regression using Others Took Points as the dependent variable and Recognition Program, Dark Triad, and Recognition

Program × Dark Triad as independent variables. Table 5 presents the results. As expected, the Recognition Program × Dark Triad interaction is significant ($z = 1.62$, $p = 0.05$) suggesting that the effect of recognition programs on expected counterproductive efforts from others is greater for participants low on the Dark Triad than those high on the Dark Triad. In addition, Recognition Program is positively associated with Others Took Points for the low Dark Triad subsample ($z = 2.69$, $p < 0.01$) and not associated with Others Took Points for the high Dark Triad subsample ($z = -0.65$, $p = 0.74$). Together, results presented in Tables 4 and 5 provide evidence consistent with the prediction that individuals low on the Dark Triad are relatively more likely to expect more counterproductive efforts from others when a recognition program is provided. As a result, they are more likely to increase their own counterproductive efforts in response to a recognition program than those high on the Dark Triad.

3.4.4 Supplemental Analyses

3.4.4.1 Private vs. Public Recognition Programs

So far, I have presented theories and evidence consistent with (1) the productive effect of recognition programs is more pronounced for individuals high on the Dark Triad than for individuals low on the Dark Triad; and (2) the counterproductive effect of recognition programs is more pronounced for individuals low on the Dark Triad than for individuals high on the Dark Triad. Next,

I provide evidence suggesting that these effects are robust to whether recognition is provided privately or publicly.

More specifically, no difference in Ranked Correct is observed between the Private and Public recognition conditions in the full, high Dark Triad, or low Dark Triad sample ($p = 0.74$, 0.70 and 0.78, respectively, two-tailed, untabulated). In addition, compared to no recognition program, both the private and public recognition programs improve productive efforts for the high Dark Triad subsample ($p = 0.02$ and 0.07, respectively for private and public recognition, untabulated), and neither program increases productive efforts for the low Dark Triad subsample ($p = 0.45$, for either private or public recognition, untabulated). [20]

Finally, no difference in Points Taken is observed between the Private and Public Recognition conditions in the full, high Dark Triad, or low Dark Triad sample ($p = 0.69$, 0.53 and 0.94, respectively, two-tailed, untabulated). In addition, compared to no recognition program, both the private and public recognition programs increase counterproductive efforts for the low Dark Triad subsample (p

[20] These results are somewhat inconsistent with prior studies that find a positive incremental performance effect of public over private relative performance information (e.g., Tafkov, 2013). There are two potential explanations for this inconsistency, both of which represent future research opportunities. First, prior research examines the effect of public vs. private relative performance in an environment where it is not possible to engage in counterproductive behaviors. It is possible that participants in my experiment are reluctant to be recognized publicly when recognition is also a function of counterproductive efforts. Second, the relative performance information in prior research includes both positive and negative information, while only positive performance is recognized in my study. It is possible that the positive incremental effect of public relative performance information in prior studies is driven by the public disclosure of negative relative performance information.

< 0.01 for either private or public recognition, untabulated), and neither program significantly increases counterproductive efforts for the high Dark Triad subsample (p = 0.22 and 0.42, respectively for private and public recognition, untabulated). These analyses suggest that results supporting H1 and H2 are robust to whether recognition is provided privately or publicly.

3.4.4.2 Recognition Programs and Task Enjoyment

I also examine the effect of recognition programs on the extent to which participants enjoy the experimental task. A measure of task enjoyment provides a wholistic representation of participants' overall experience, which is influenced by both their productive and counterproductive efforts. In the post experimental questionnaire, participants are asked to indicate the extent to which they agree with the following statement, "I enjoyed working on the letter-search task" on a seven-point Likert scale (Task Enjoyment). I estimate an ordered logistic regression with Task Enjoyment as the dependent variable, and Recognition Program, Dark Triad, and Recognition Program × Dark Triad as independent variables.

Figure 3 shows mean Task Enjoyment by condition. Table 6 presents the results. The coefficient on Recognition × Dark Triad is significant (z = 2.22, p = 0.03, two-tailed) indicating that the effect of Recognition Program on Task Enjoyment is different for individuals high and low on the Dark Triad. While the effect of Recognition Program on Task Enjoyment is positive and marginally significant for participants high on the Dark Triad (z = 1.62, p = 0.11, two-tailed),

it is negative and marginally significant for those low on the Dark Triad ($z = 1.53$, $p = 0.13$, two-tailed).

These results are interesting and relevant for two reasons. First, they provide additional evidence suggesting that people high and low on the Dark Triad do experience the same recognition program in markedly different ways. While recognition programs make the task more exciting and enjoyable for individuals high on the Dark Triad, they make the task less enjoyable for individuals low on the Dark Triad. These results are consistent with the finding that recognition programs primarily increase productive efforts for individuals high on the Dark Triad and counterproductive efforts for those low on the Dark Triad. Second, to the extent that Task Enjoyment measures participants' intrinsic motivation, these results provide some contradictory evidence to the widely held view that external rewards such as recognition programs undermine intrinsic motivation (e.g., Lepper, Greene, and Nisbett 1973; Deci and Ryan 1985).[21] My results suggest that the relation between external rewards and intrinsic motivation might be more nuanced than previously understood. Future research can provide insights into how persistent individual characteristics moderate the relation between external rewards (both financial and non-financial) and intrinsic motivation.

[21] Intrinsic motivation reflects the propensity to engage in activities that are inherently satisfactory and enjoyable. It not only has implications for short-term performance, it also encourages learning and plays an important role in sustaining long-run performance (Ryan and Deci 2000). One standard measure of intrinsic motivation is self-reported task enjoyment (Deci et al. 1999).

3.5 CONCLUSION

In this study, I examine the productive and counterproductive effects of programs that award employees nonpecuniary recognition based on measures of relative performance. I find that although these programs increase both productive and counterproductive efforts in the aggregate, the Dark Triad of personalities moderates these effects. More specifically, providing a recognition program to individuals high on the Dark Triad primarily motivates productive efforts. In stark contrast, providing a recognition program to individuals low on the Dark Triad primarily motivates counterproductive efforts.

In addition to contributing to the literature in accounting that studies the effect of relative performance information on employee performance, results of this study have important implications for the use of recognition programs in practice. These programs have been a subject of heated debated in the practitioner literature. Proponents argue that these programs motivate productive efforts at a minimal cost (Luthans 2000). Opponents counter that these programs encourage counterproductive behaviors, and that the cost of these behaviors outweigh the programs' benefits (Kohn 1993). My results help reconcile these opposing views by highlighting that, although recognition programs have both a productive and a counterproductive effect at the aggregate level, for some individuals the productive effect dominates while for others the counterproductive effect dominates. Because prior research suggests that certain jobs attract employees high on the Dark Triad,

my results highlight the importance for managerial accountants to consider the unique characteristics of their workforce in determining whether to provide recognition based on measures of relative performance.

More broadly, the results of my study highlight the importance of considering individual employee characteristics when designing and implementing management control and incentive systems. These results provide a clear example of how an incentive mechanism that motivates productivity in some employees can at the same time induce detrimental behaviors in others. Here, managerial accounting researchers can leverage theories developed in personality psychology and provide important insights. More specifically, managerial accounting researchers can identify important individual characteristics that interact with key elements of management control and incentive systems in affecting employee motivation and behaviors.

Limitations of my study provide additional opportunities for future research. First, the recognition programs in my experiment are non-recurring. A distinguishing feature of a recurring recognition program is that the performance feedback provided by past recognitions can potentially interact with the effect of future recognition opportunities. Although my results provide a meaningful starting point to understand the effects of recurring recognition programs, how performance feedback affects productive and counterproductive efforts is out of the scope of the current investigation. It is possible that individuals high and low on the Dark Triad

may respond to performance feedback differently. Dworkis (2013) provides theory suggesting that individuals high in Narcissism respond to positive performance feedback more positively and negative feedback more negatively than individuals low in Narcissism. If so, in future studies, it would be interesting to understand how performance feedback generated by past recognitions interacts with future recognition opportunities and employee specific characteristics to impact the effectiveness of recurring recognition programs.

Second, participants in my experiment are randomly assigned into groups and they do not know the identity of their group members. In organizations, social ties exist among employees. How pre-existing social ties affect the efficacy of recognition programs and how these programs, in turn, shape these social ties are interesting and important research questions for future investigation.

TABLE 1

Sequence of Steps for Participants during the Experiment

1. Participants read that they will earn points working on a challenging task and will be paid a show-up fee of $10 and $0.25 per point they have at the end of the experiment.

2. Participants read about their assigned recognition condition.

3. Participants decide in advance how many points to take away from each of their group members.

4. Participants learn about the letter-search task and work on the task for ten minutes.

5. Participants complete a post experimental questionaire which among other things includes the Dark Triad questionnaire.

6. The top performer of each group in the Recognition condition is recognized.

7. Participants learn about the number of points they have remaining after points taken away by their group members have been deducted and are paid 0.25 for each point plus a $10 show-up fee in cash.

TABLE 2
Descriptive Statistics by Recognition Program

	Full Sample			High DT Subsample[b]			Low DT Subsample[b]		
	Recognition Program[a]			Recognition Program[a]			Recognition Program[a]		
	No Rec.	Private Rec.	Public Rec.	No Rec.	Private Rec.	Public Rec.	No Rec.	Private Rec.	Public Rec.
Num of Correct Boxes[c]	42.92	46.88	47.00	40.73	49.69	48.00	44.64	42.40	46.08
	(13.67)	(10.54)	(14.66)	(9.74)	(11.29)	(10.95)	(16.27)	(7.75)	(17.84)
Num of Points Deducted[d]	1.96	4.46	4.08	3.27	4.44	4.00	0.93	4.50	4.15
	(3.47)	(3.76)	(3.92)	(4.56)	(3.92)	(4.16)	(1.90)	(3.69)	(3.85)
N	25	26	25	11	16	12	14	10	13

[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above the median on the Dark Triad questionnaire are assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] The number of search boxes participants count correctly.

[d] The number of points participants take away from each group member.

TABLE 3

ANOVA Analaysis of the Effects of Recogntion Program and Dark Triad on the Ranked Number of Boxes Participants Correctly Count

Panel A: Means (Standard Deviations) for Ranked Correct[c]

	No Rec.[a]	Rec.[a]
High DT Subsample[b]	30.45	46.13
	(21.00)	(20.74)
Low DT Subsample[b]	35.00	35.20
	(24.33)	(21.37)

Panel B: Analysis of Variance

Factors	***df***	**MSE**	***t***	***p-value*** [e]
English[d]	1	1275.72	1.67	0.10
Dark Triad (DT)	1	71.53	0.40	0.69
Recognition Program (	1	1239.51	1.65	**0.05**
DT x RP	1	1083.19	1.54	**0.06**
Error	71	457.59		

Panel C: Simple Effects of Recognition Program on Ranked Correct

	df	**MSE**	***t***	***p-value*** [e]
within High DT Subs	1	2067.92	2.17	**0.02**
within Low DT Subs	1	5.96	0.10	**0.46**

[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above the median on the Dark Triad questionnaire are assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Ranked Correct represents the ordinal rank of the number of search boxes participants correctly counted. A larger number indicates greater producitive efforts.

[d] English is set to one if a participant's first language is English and zero otherwise.

[e] Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.

TABLE 4

Ordered Logistic Analsyis of the Effects of Recognition Program and Dark Triad on Whether Participants Take Away No Point, Some Points, or the Maximum Ten Points

Panel A: Frequency Distribution for Points Taken[c]

		No Rec.[a]	Rec.[a]
High DT Subsample[b]	No Point	55%	36%
	Some Poin	18%	43%
	Maximum	27%	21%
Low DT Subsample[b]	No Point	79%	30%
	Some Poin	21%	48%
	Maximum	0%	22%

Panel B: Results of Ordered Logistic Analysis - Full Sample

Independent Variables	***Estimate***	***z***	***p-value*** [e]
Dark Triad (DT)	0.33	1.31	0.19
Recognition Program (RP)	0.63	2.45	**<0.01**
DT x RP	0.40	1.59	**0.06**

Panel C: Results of Orderd Logistic Analysis - Subsamples

Independent Variables	**Estimate**	***z***	***p-value*** [e]
High DT Subsample			
Recogntion Program (RP)	0.42	0.62	**0.27**
Low DT Subsample			
Recognition Program (RP)	2.22	2.80	**<0.01**

[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above the median on the Dark Triad questionnaire are assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Points Taken is a categorical variable set to "No Point", "Some Points" and "Maximum Points" if a participant takes zero, between one and nine, and all ten points away from each of his/her team members, respectively.

[e] Reported significance tests for directional predictions are one-tailed and are indicated by bold face.

TABLE 5

Ordered Logistic Analsyis of the Effects of Recognition Program and Dark Triad on Expected Points Taken by Others

Panel A: Means (Standard Deviations) for Others Took Points[c]

	No Rec.[a]	**Rec.[a]**
High DT Subsample[b]	4.91	4.74
	(1.20)	(1.56)
Low DT Subsample[b]	3.64	4.64
	(1.95)	(2.25)

Panel B: Results of Ordered Logistic Analysis - Full Sample

Independent Variables	***Estimate***	***z***	***p-value*** [e]
Dark Triad (DT)	0.30	1.35	0.18
Recognition Program (RP)	0.33	1.50	**0.07**
DT x RP	0.40	1.62	**0.05**

Panel C: Results of Orderd Logistic Analsis - Subsamples

Independent Variables	**Estimate**	***z***	***p-value*** [e]
High DT Subsample			
Recogntion Program (RP)	-0.48	-0.65	**0.74**
Low DT Subsample			
Recognition Program (RP)	1.59	2.69	**<0.01**

[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above the median on the Dark Triad questionnaire are assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Others Took Points measures expected counterproducitive efforts from others. It represents participant's response to the following statement, " I think my group members took many points away from me on the letter-search task," using a seven-point Likert scale.

[e] Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.

TABLE 6
Ordered Logistic Analsyis of the Effects of Recognition Program and Dark Triad on Task Enjoyment

Panel A: Means (Standard Deviations) for Enjoyment[c]

	No Rec.[a]	**Rec.[a]**
High DT Subsample[b]	5.45	6.11
	(1.29)	(1.07)
Low DT Subsample[b]	5.79	5.17
	(1.25)	(1.37)

Panel B: Results of Ordered Logistic Analysis - Full Sample

Independent Variables	***Estimate***		***p-value*** [e]
Dark Triad (DT)	-0.20	1.42	0.40
Recognition Program (RP)	-0.07	0.84	0.16
DT x RP	0.51	2.22	0.03

Panel C: Results of Orderd Logistic Analsis - Subsamples

Independent Variables	**Estimate**		***p-value*** [e]
High DT Subsample			
Recogntion Program (RP)	1.07	1.62	0.11
Low DT Subsample			
Recognition Program (RP)	-0.97	1.53	0.13

[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

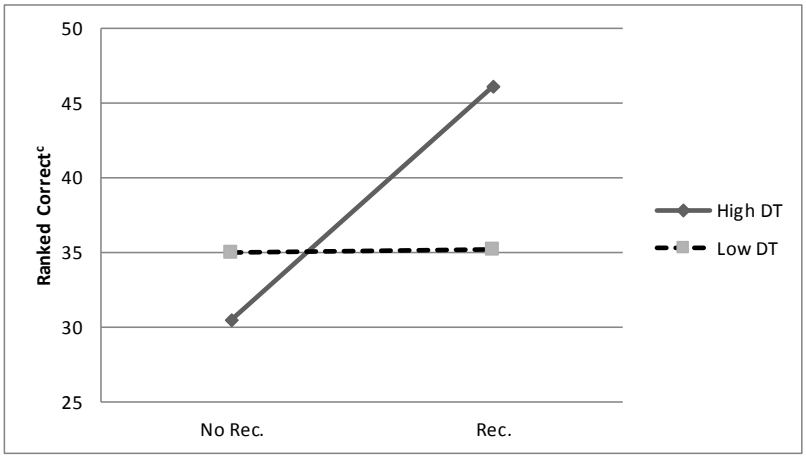
[b] Participants scoring at or above median on the Dark Triad questionnaire are assigned to the High Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Enjoyment represents participants' response to the following statement, " I enjoyed working on the letter search task," using a seven-point Likert scale.

[e] Reported significance tests are twp-tailed as no directional predictions are made.

Figure 1

The Effects of Recogntion Program[a] and Dark Triad[b] on the Ranked Number of Boxes Participants Correctly Count



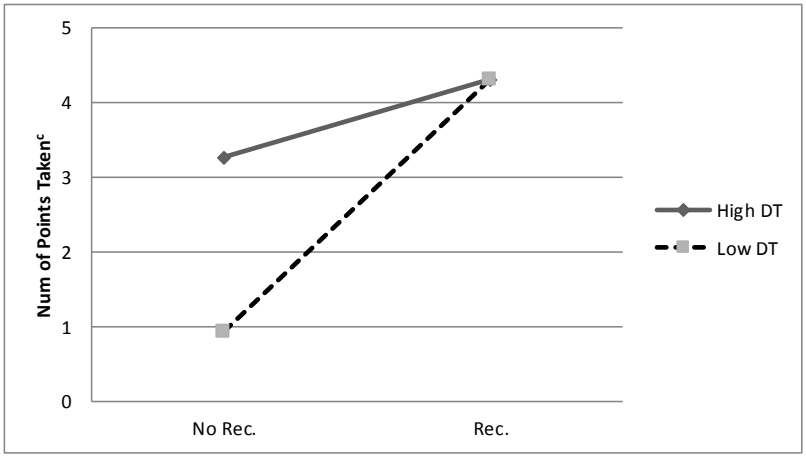
[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above the median on the Dark Triad questionnaire are assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Ranked Correct represents the ordinal rank of the number of search boxes participants correctly counted. A larger number indicates greater producitive efforts.

Figure 2

The Effects of Recognition Program[a] and Dark Triad[b] on the Number of Points Participants Take Away from Each Group Member



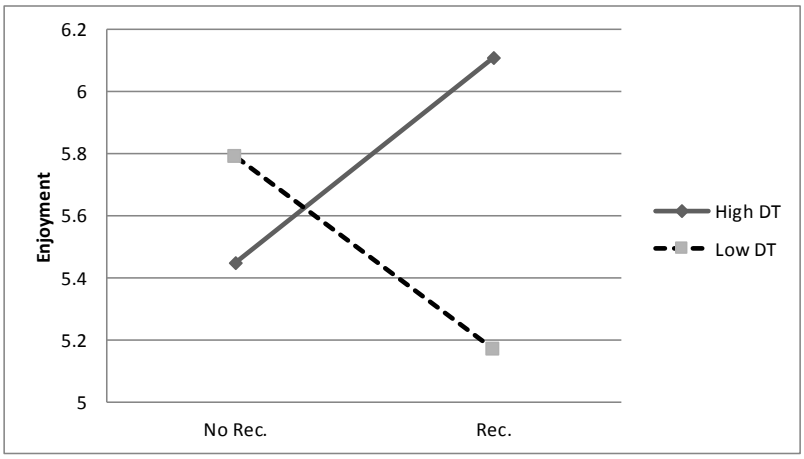
[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

[b] Participants scoring at or above median on the Dark Triad questionnaire is assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] The number of points participants take away from each group member.

Figure 3

The Effects of Recognition Program[a] and Dark Triad[b] on Task Enjoyment[c]



[a] Recognition Program is manipulated at three levels: No Recognition, Private Recognition, and Public Recognition. Specifically, Participants in the No Recognition condition are not promised or porvided recognition. Participants in the Private and Public Recognition conditions are promised and provided non-pecuniary private or public recognition, respectively, for superiror performance.

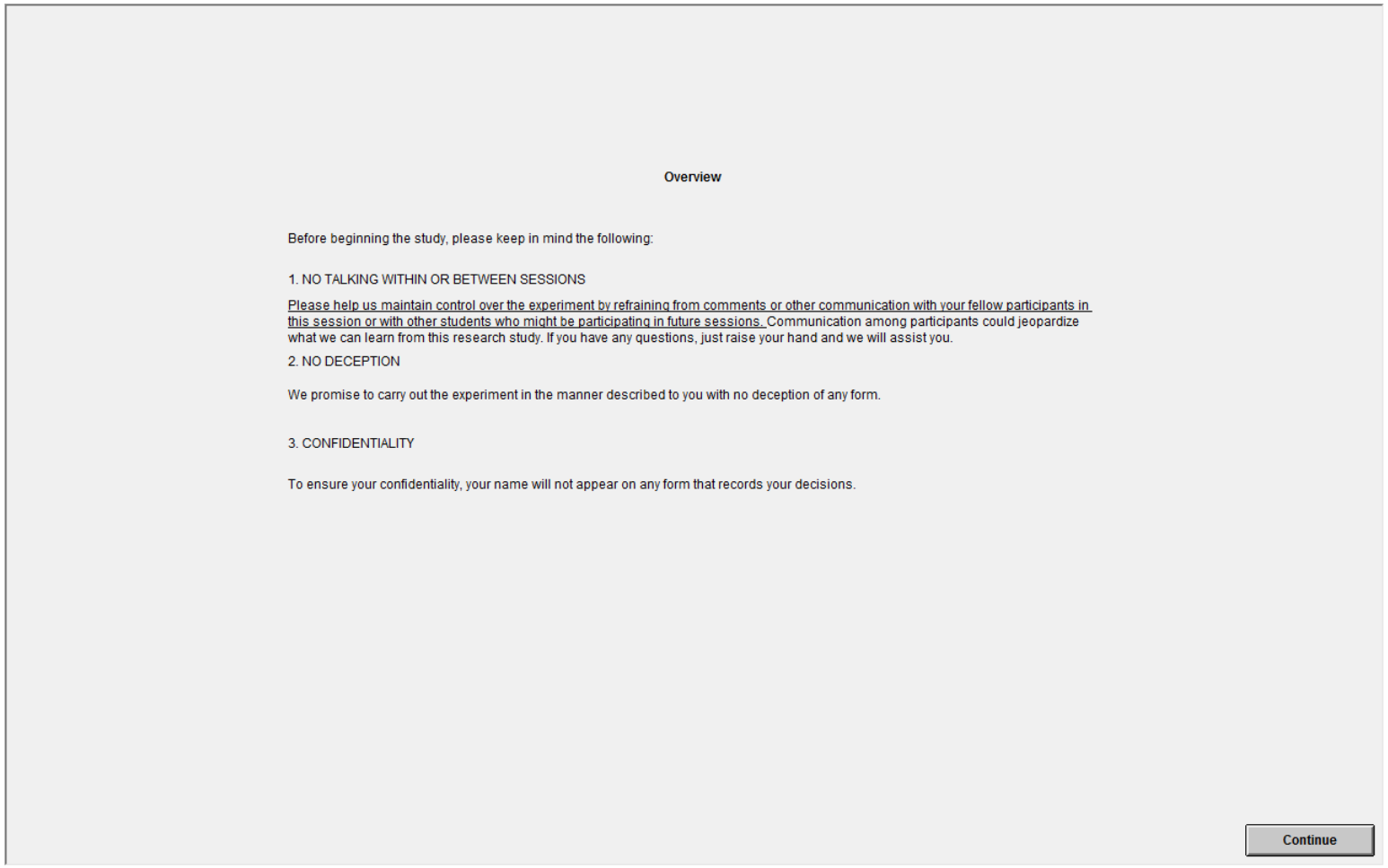
[b] Participants scoring at or above median on the Dark Triad questionnaire is assigned to the high Dark Triad subsample and the remaining participants are assigned to the low Dark Triad subsample.

[c] Enjoyment represents participants' response to the following statement, " I enjoyed working on the letter search task," using a seven-point Likert scale.

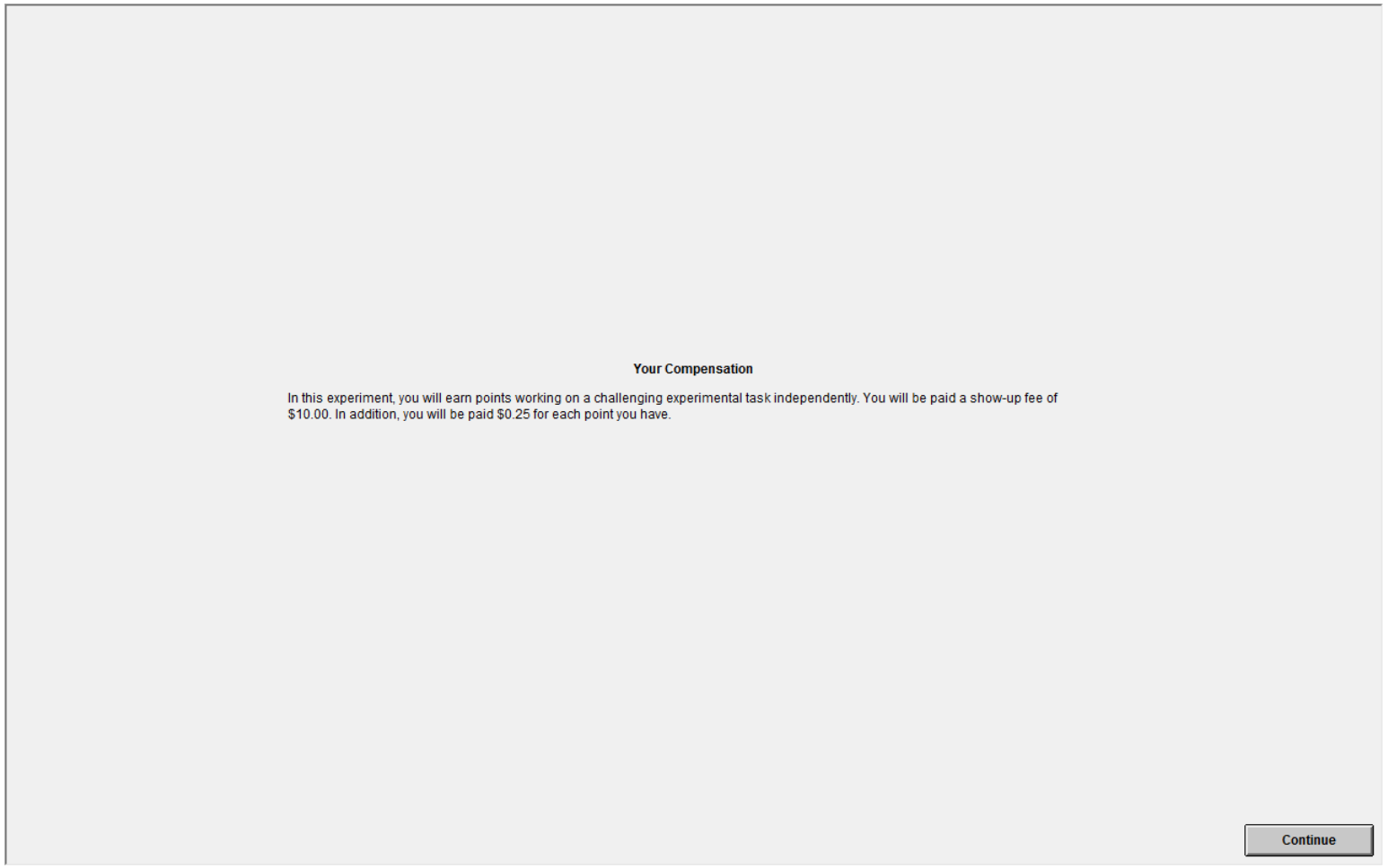
APPENDIX: EXPERIMENTAL MATERIALS

Participants Instructions (Public Recognition Condition)

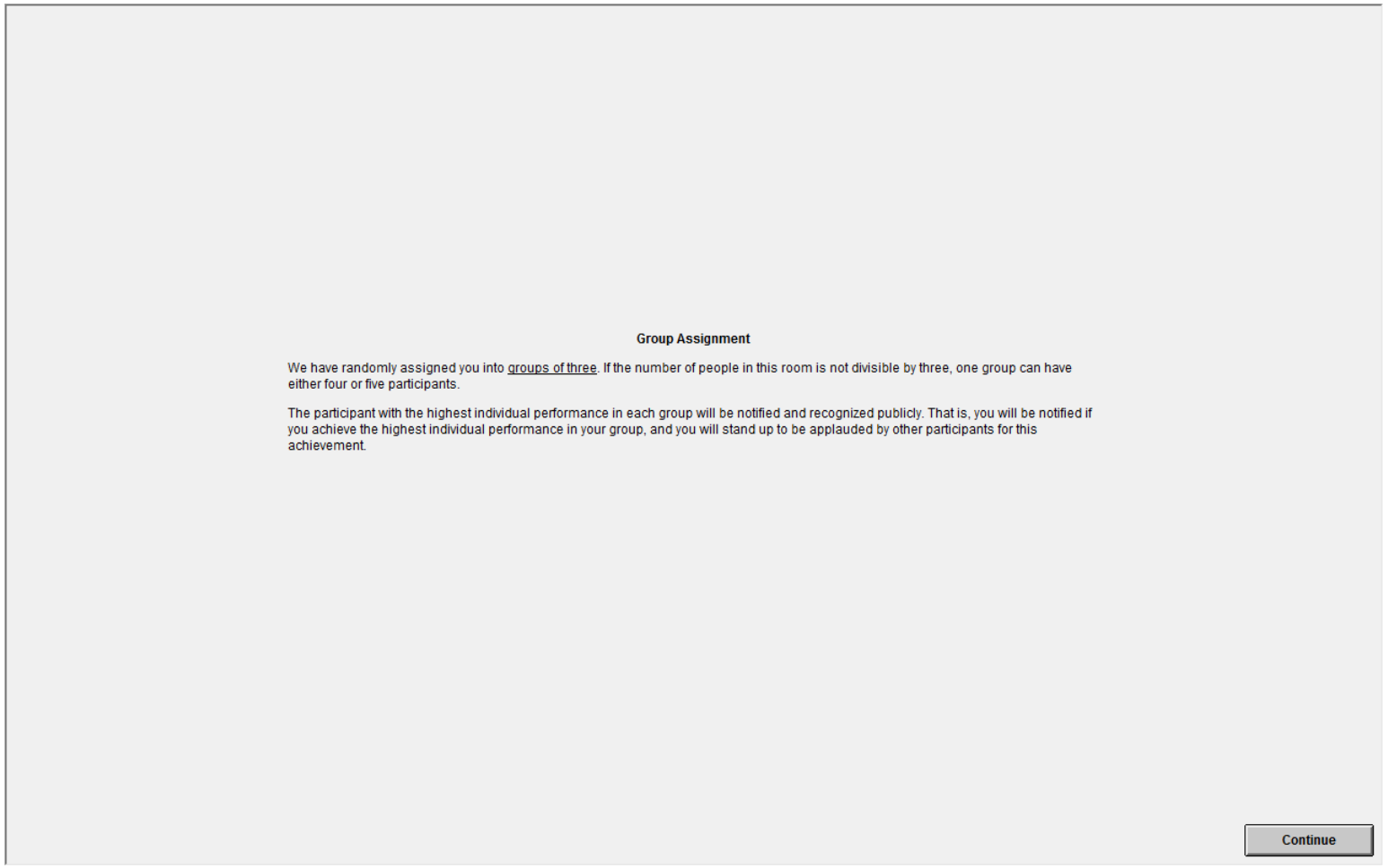
Screen 1


Overview
Before beginning the study, please keep in mind the following:
1. NO TALKING WITHIN OR BETWEEN SESSIONS
Please help us maintain control over the experiment by refraining from comments or other communication with your fellow participants in this session or with other students who might be participating in future sessions. Communication among participants could jeopardize what we can learn from this research study. If you have any questions, just raise your hand and we will assist you.
2. NO DECEPTION
We promise to carry out the experiment in the manner described to you with no deception of any form.
3. CONFIDENTIALITY
To ensure your confidentiality, your name will not appear on any form that records your decisions.
Continue

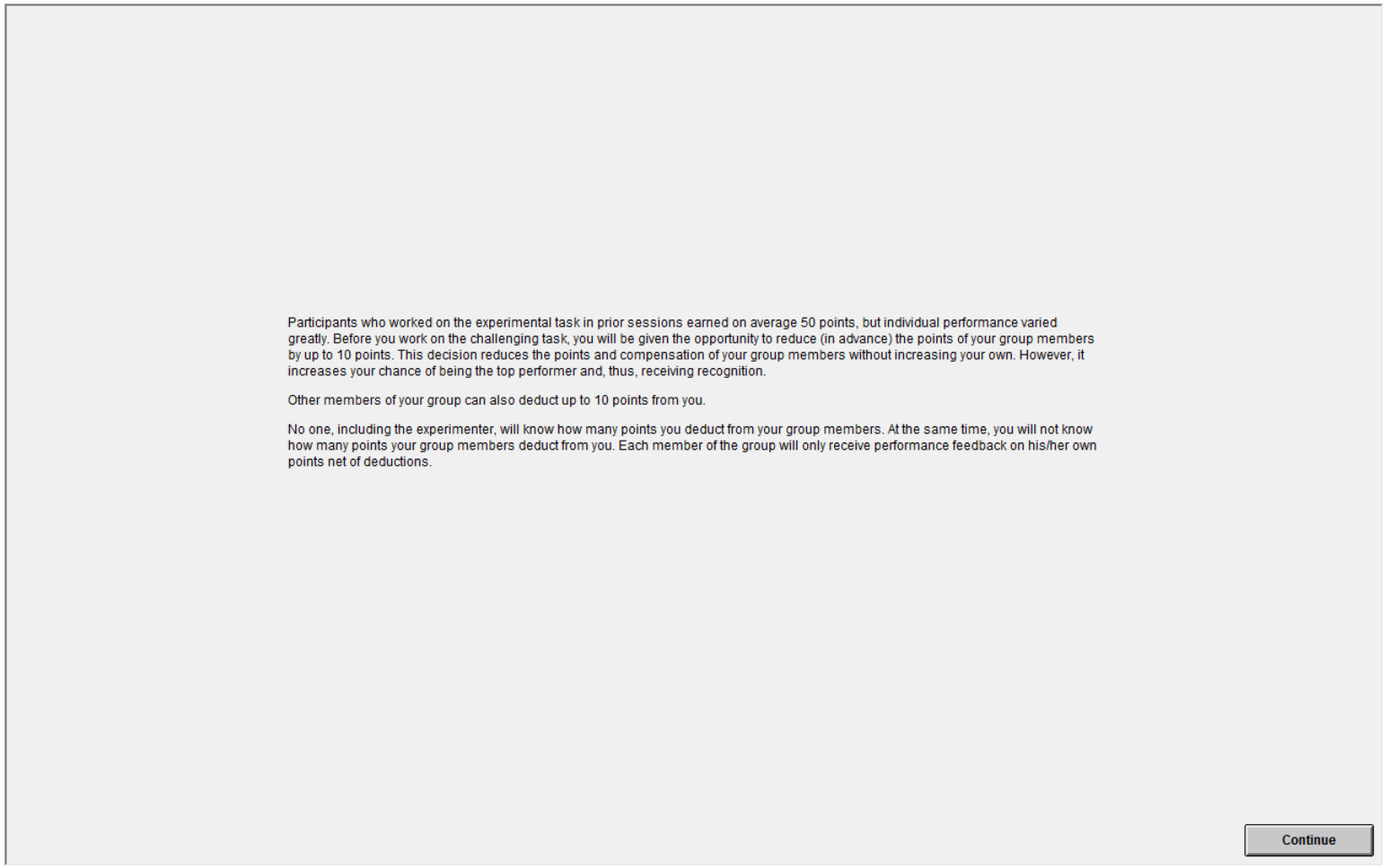
Screen 2


Your Compensation
In this experiment, you will earn points working on a challenging experimental task independently. You will be paid a show-up fee of $10.00. In addition, you will be paid $0.25 for each point you have.
Continue

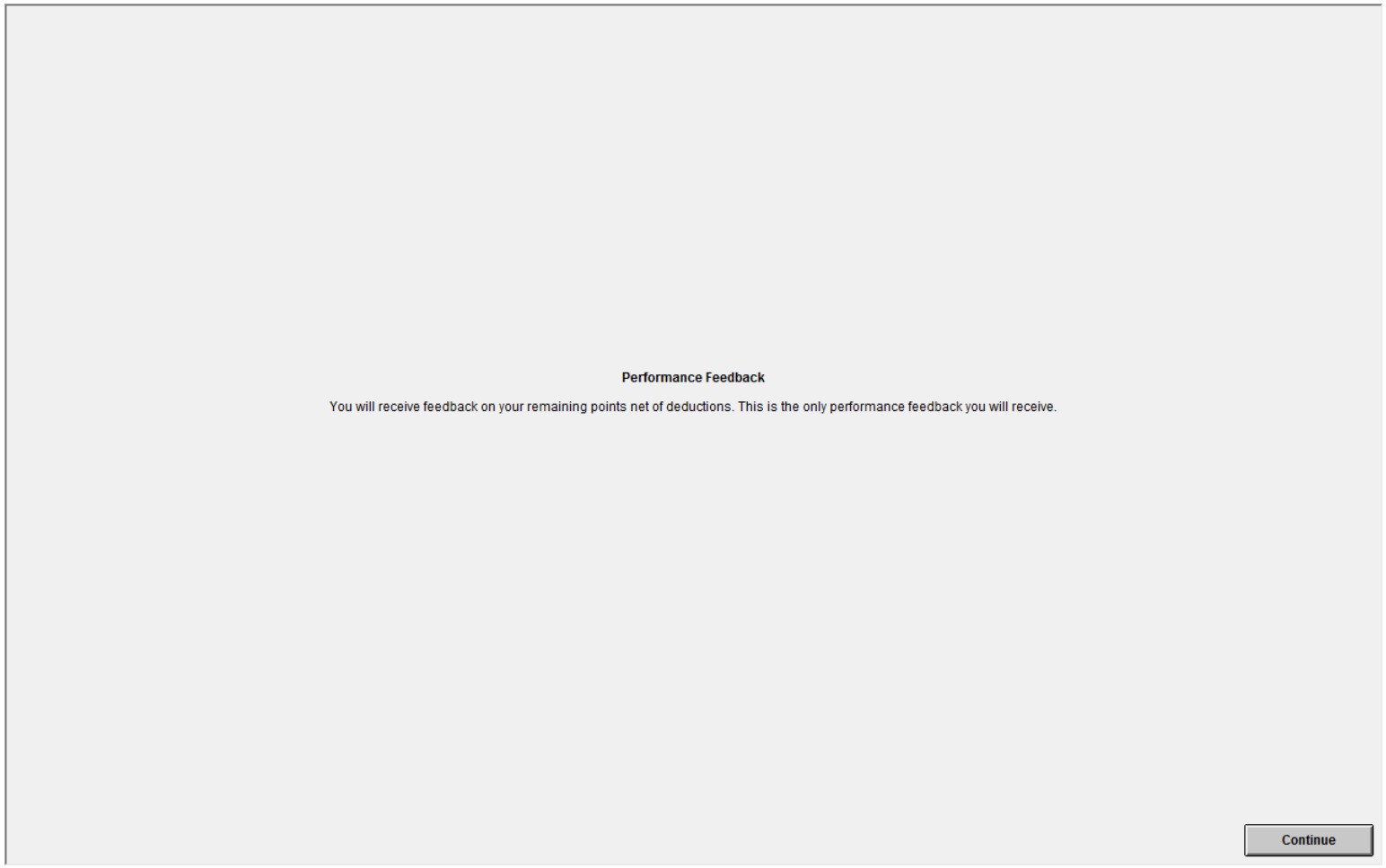
Screen 3


Group Assignment
We have randomly assigned you into groups of three. If the number of people in this room is not divisible by three, one group can have either four or five participants.
The participant with the highest individual performance in each group will be notified and recognized publicly. That is, you will be notified if you achieve the highest individual performance in your group, and you will stand up to be applauded by other participants for this achievement.
Continue

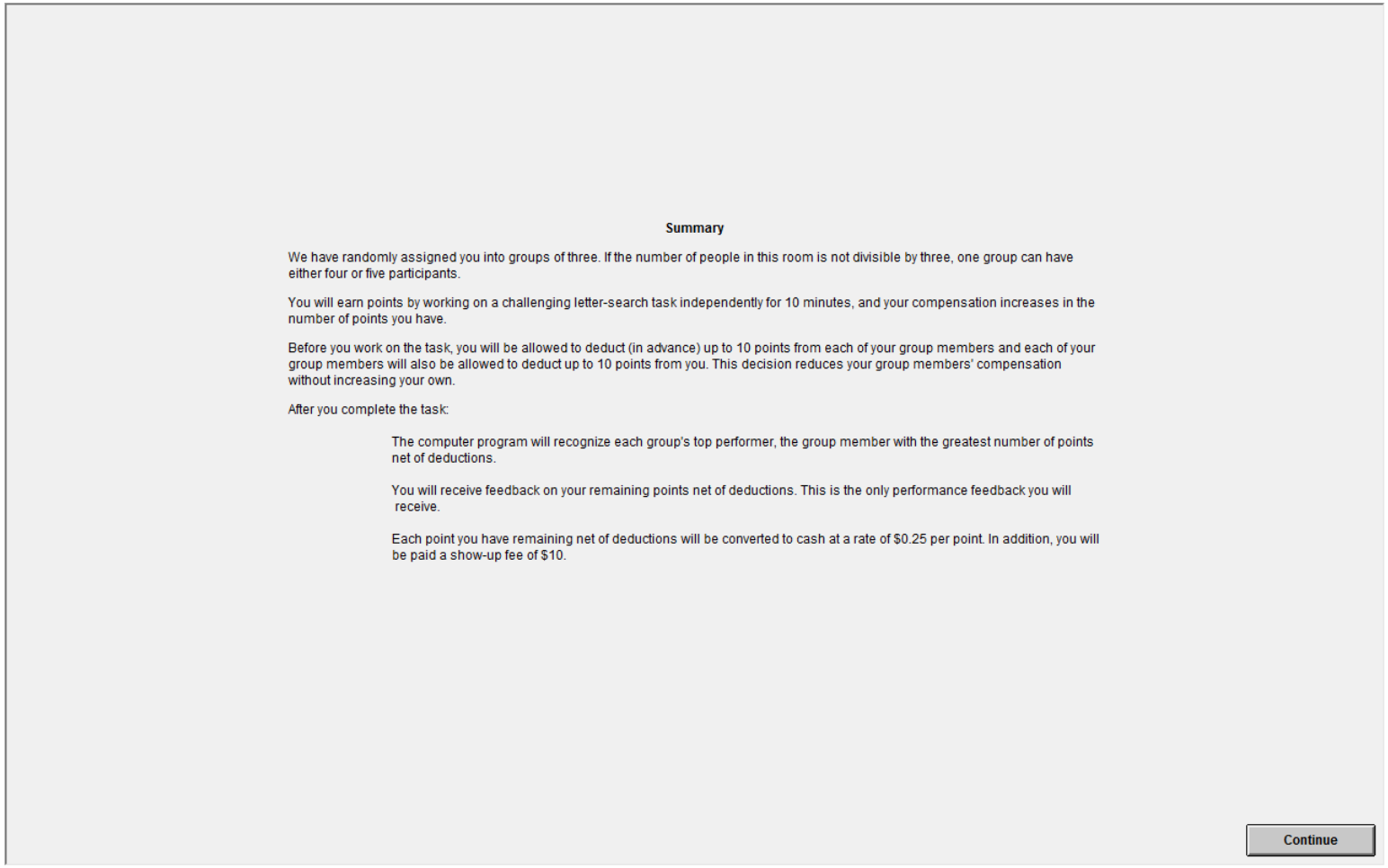
Screen 4


Participants who worked on the experimental task in prior sessions earned on average 50 points, but individual performance varied greatly. Before you work on the challenging task, you will be given the opportunity to reduce (in advance) the points of your group members by up to 10 points. This decision reduces the points and compensation of your group members without increasing your own. However, it increases your chance of being the top performer and, thus, receiving recognition.
Other members of your group can also deduct up to 10 points from you.
No one, including the experimenter, will know how many points you deduct from your group members. At the same time, you will not know how many points your group members deduct from you. Each member of the group will only receive performance feedback on his/her own points net of deductions.
Continue

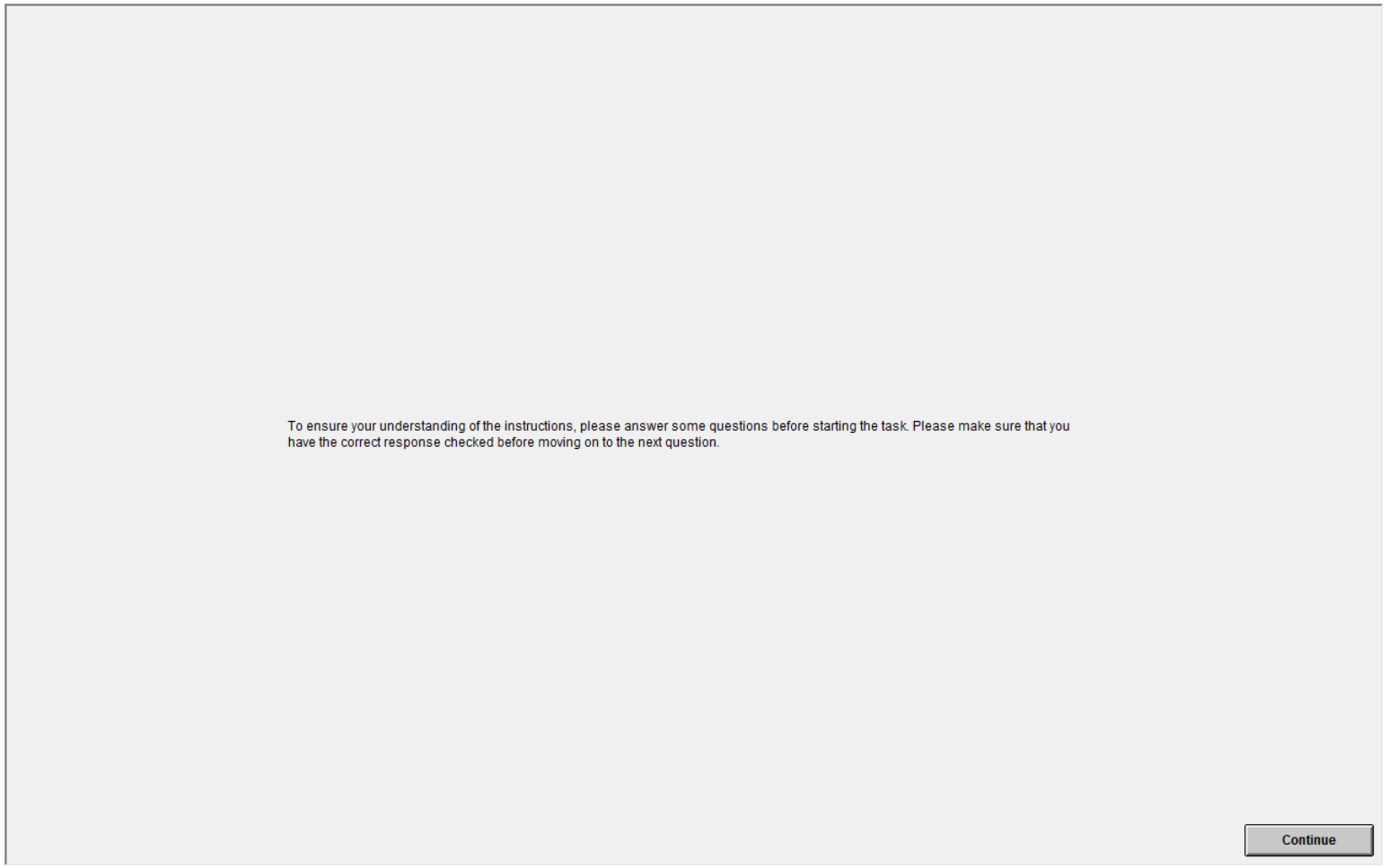
Screen 5


Performance Feedback
You will receive feedback on your remaining points net of deductions. This is the only performance feedback you will receive.
Continue

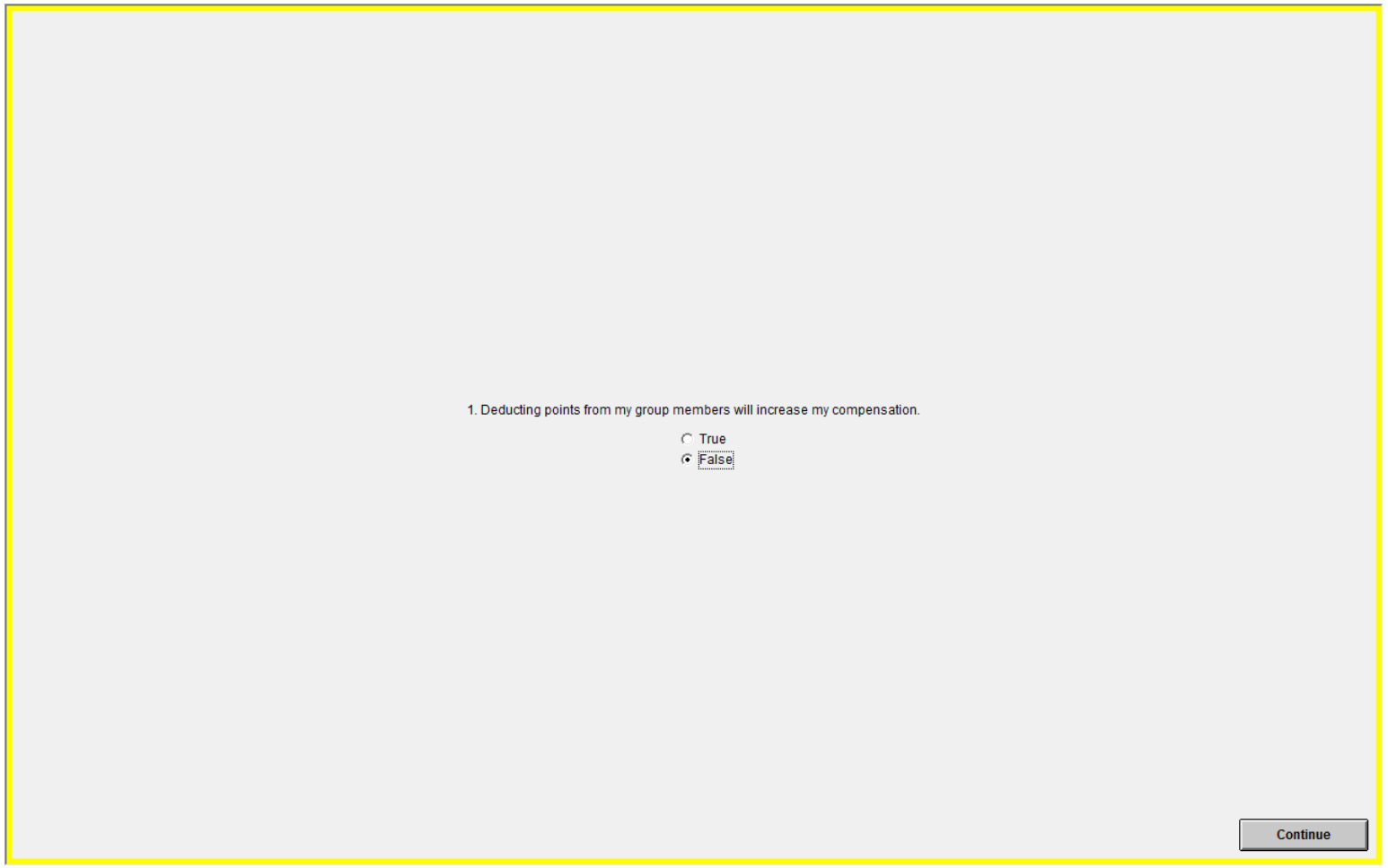
Screen 6


Summary
We have randomly assigned you into groups of three. If the number of people in this room is not divisible by three, one group can have either four or five participants.
You will earn points by working on a challenging letter-search task independently for 10 minutes, and your compensation increases in the number of points you have.
Before you work on the task, you will be allowed to deduct (in advance) up to 10 points from each of your group members and each of your group members will also be allowed to deduct up to 10 points from you. This decision reduces your group members' compensation without increasing your own.
After you complete the task:
The computer program will recognize each group's top performer, the group member with the greatest number of points net of deductions.
You will receive feedback on your remaining points net of deductions. This is the only performance feedback you will receive.
Each point you have remaining net of deductions will be converted to cash at a rate of $0.25 per point. In addition, you will be paid a show-up fee of $10.
Continue

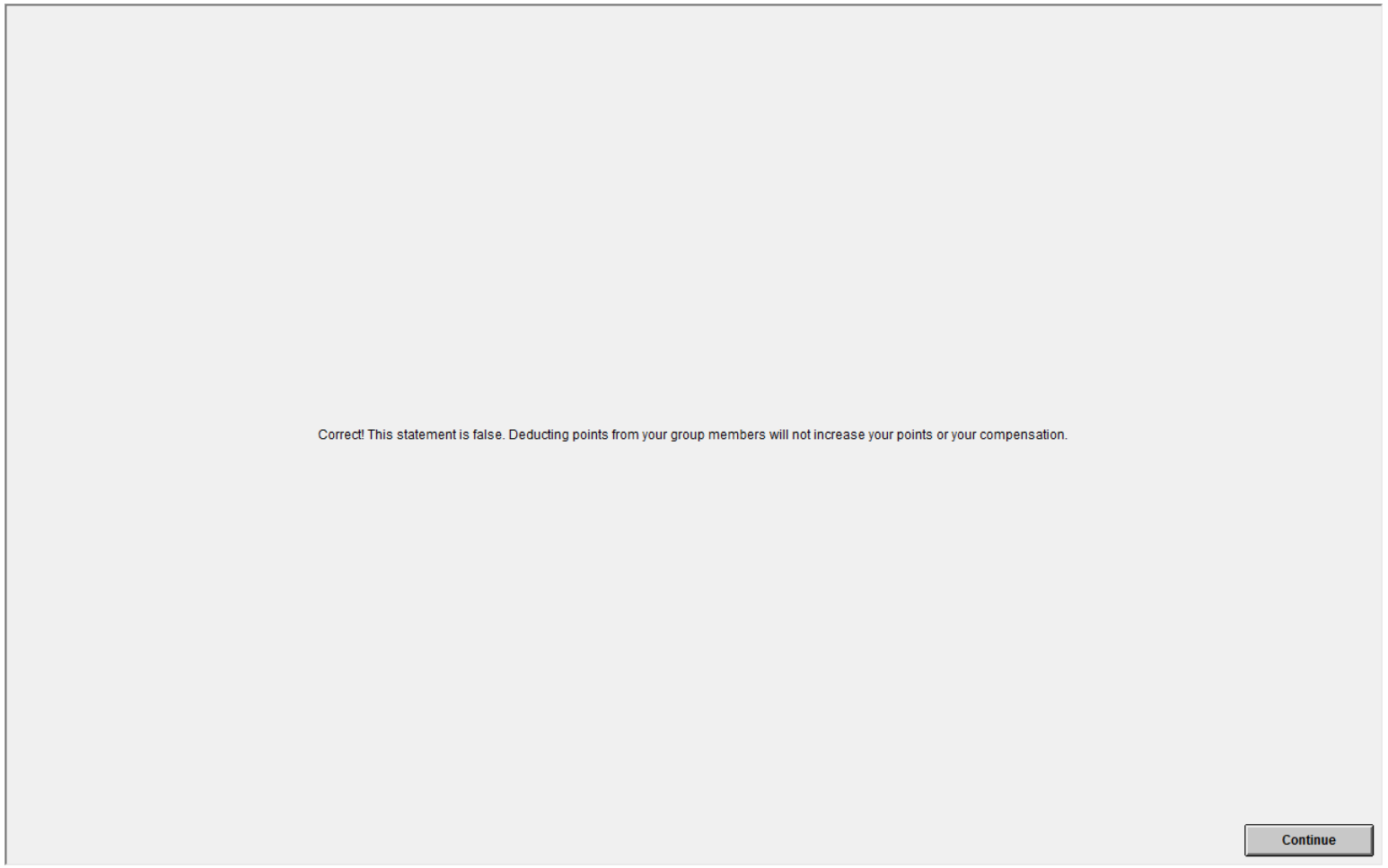
Screen 7


To ensure your understanding of the instructions, please answer some questions before starting the task. Please make sure that you have the correct response checked before moving on to the next question.
Continue

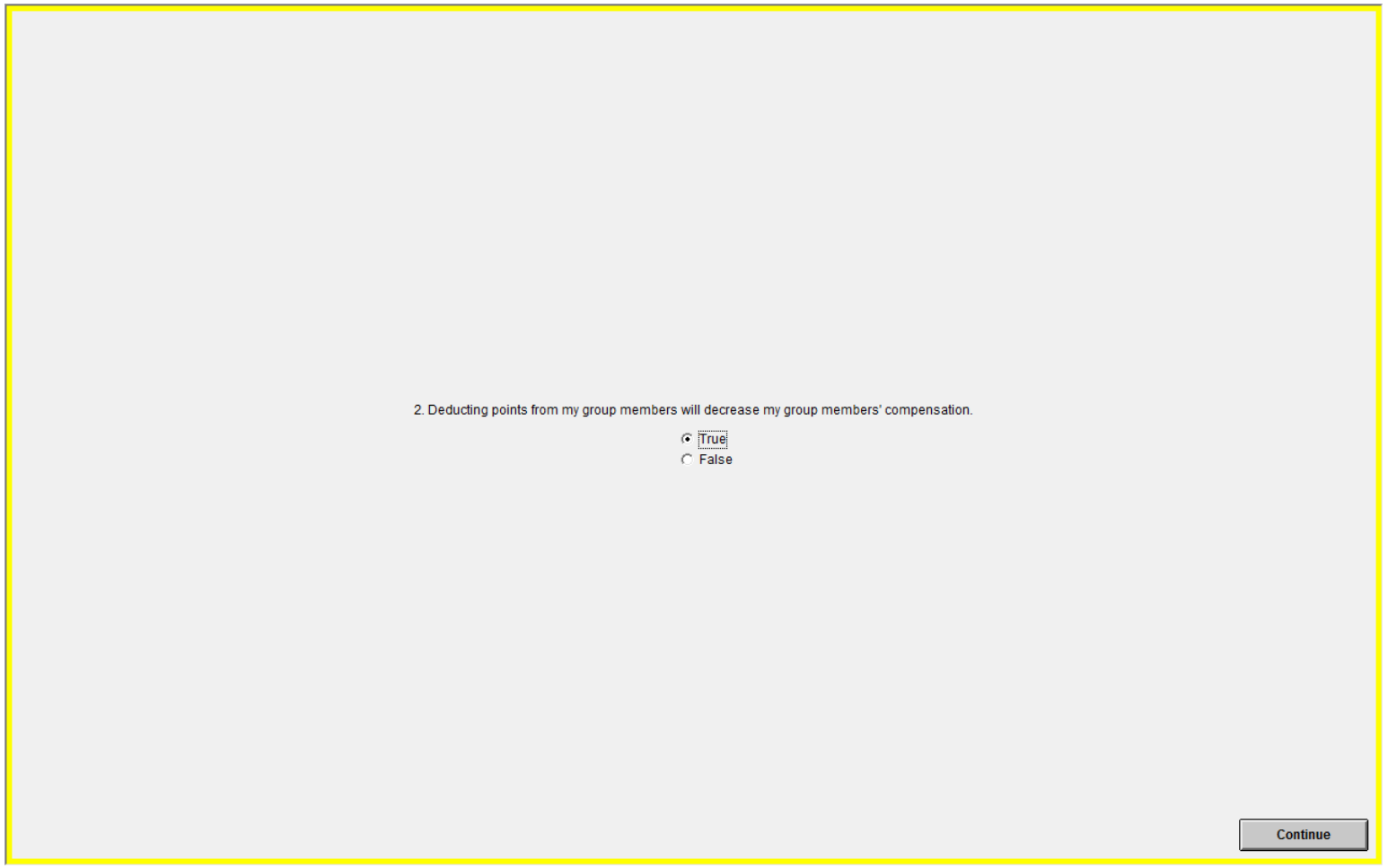
Screen 8


1. Deducting points from my group members will increase my compensation.
True
False
Continue

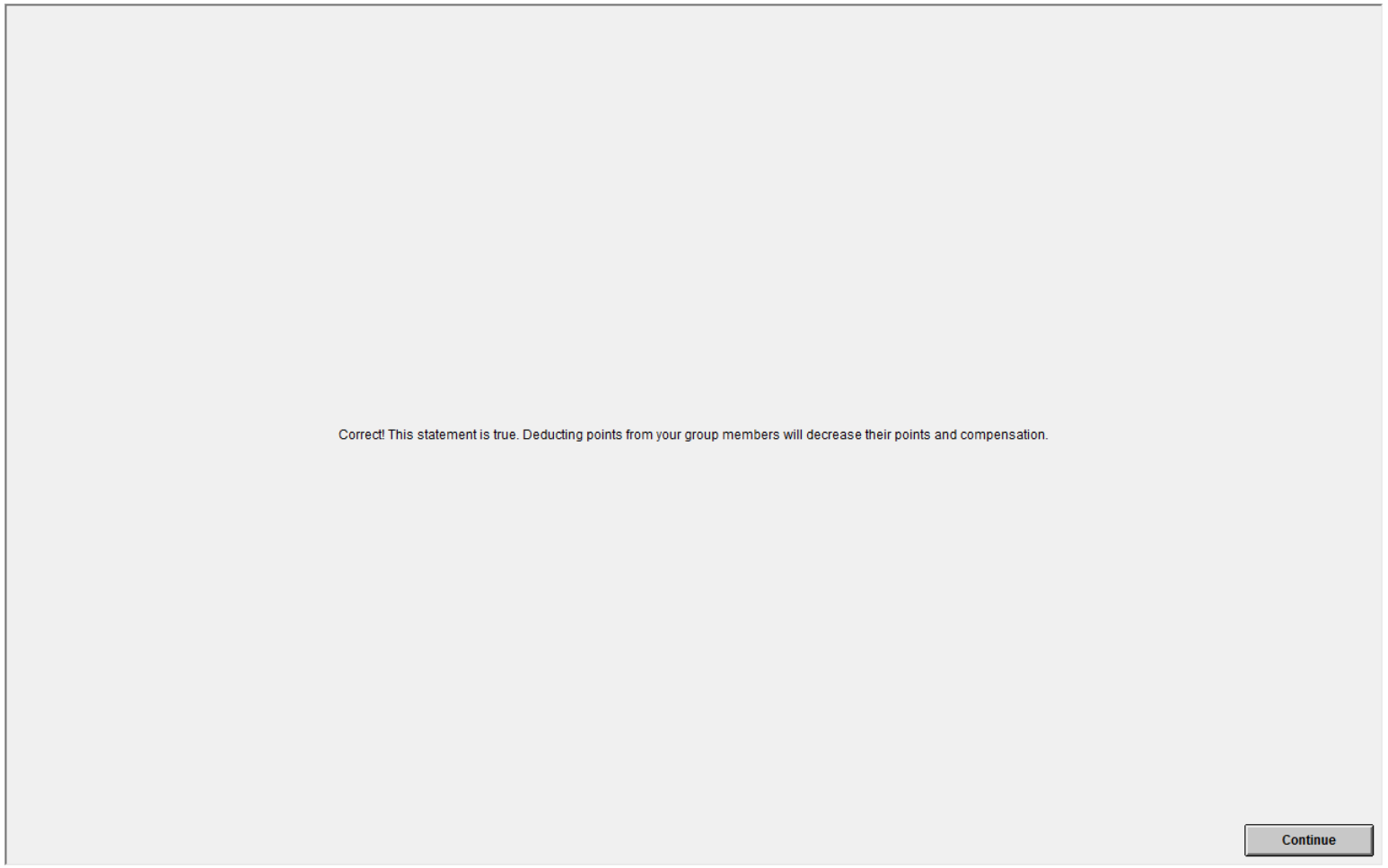
Screen 9


Correct! This statement is false. Deducting points from your group members will not increase your points or your compensation.
Continue

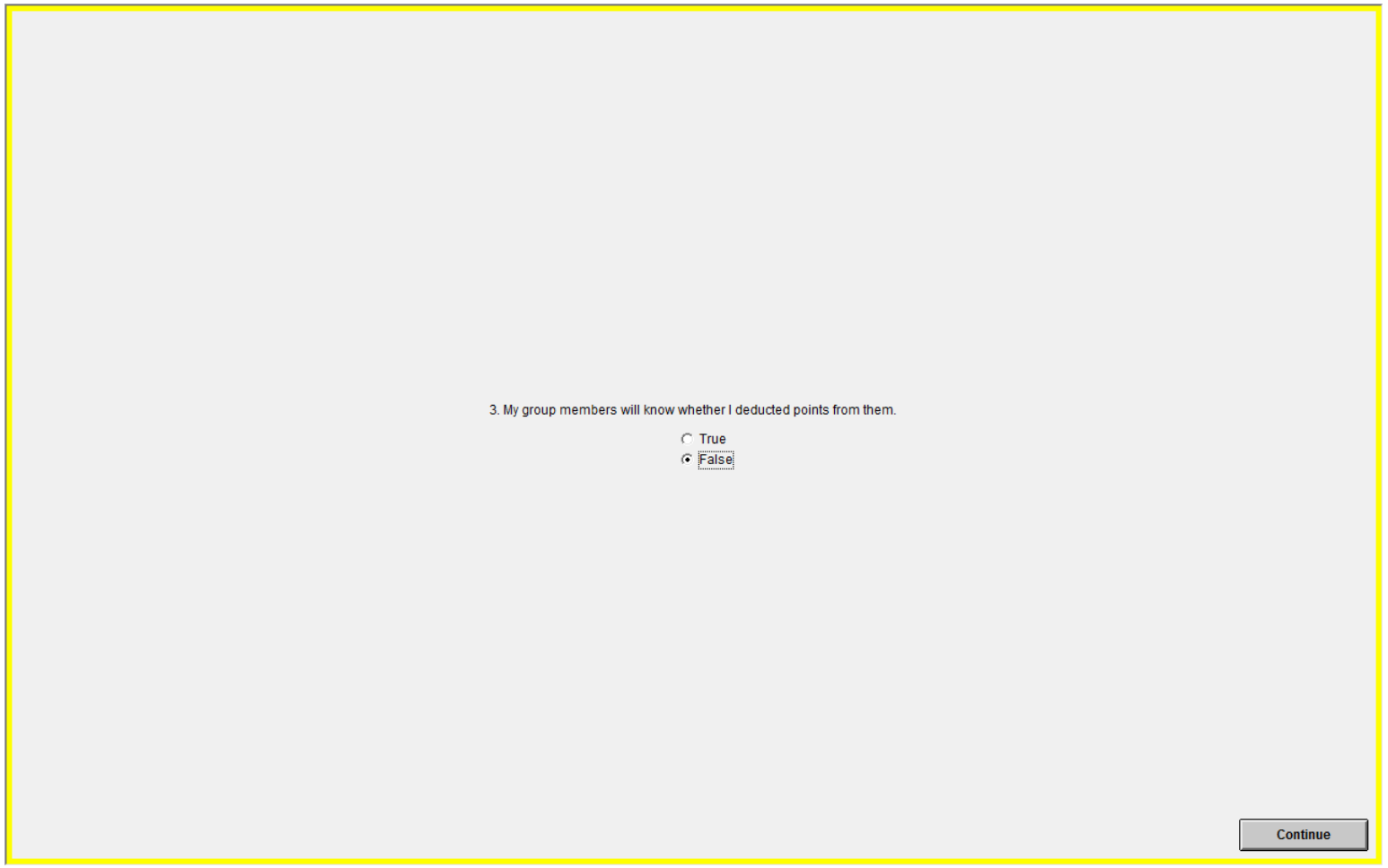
Screen 10


2. Deducting points from my group members will decrease my group members' compensation.
True
False
Continue

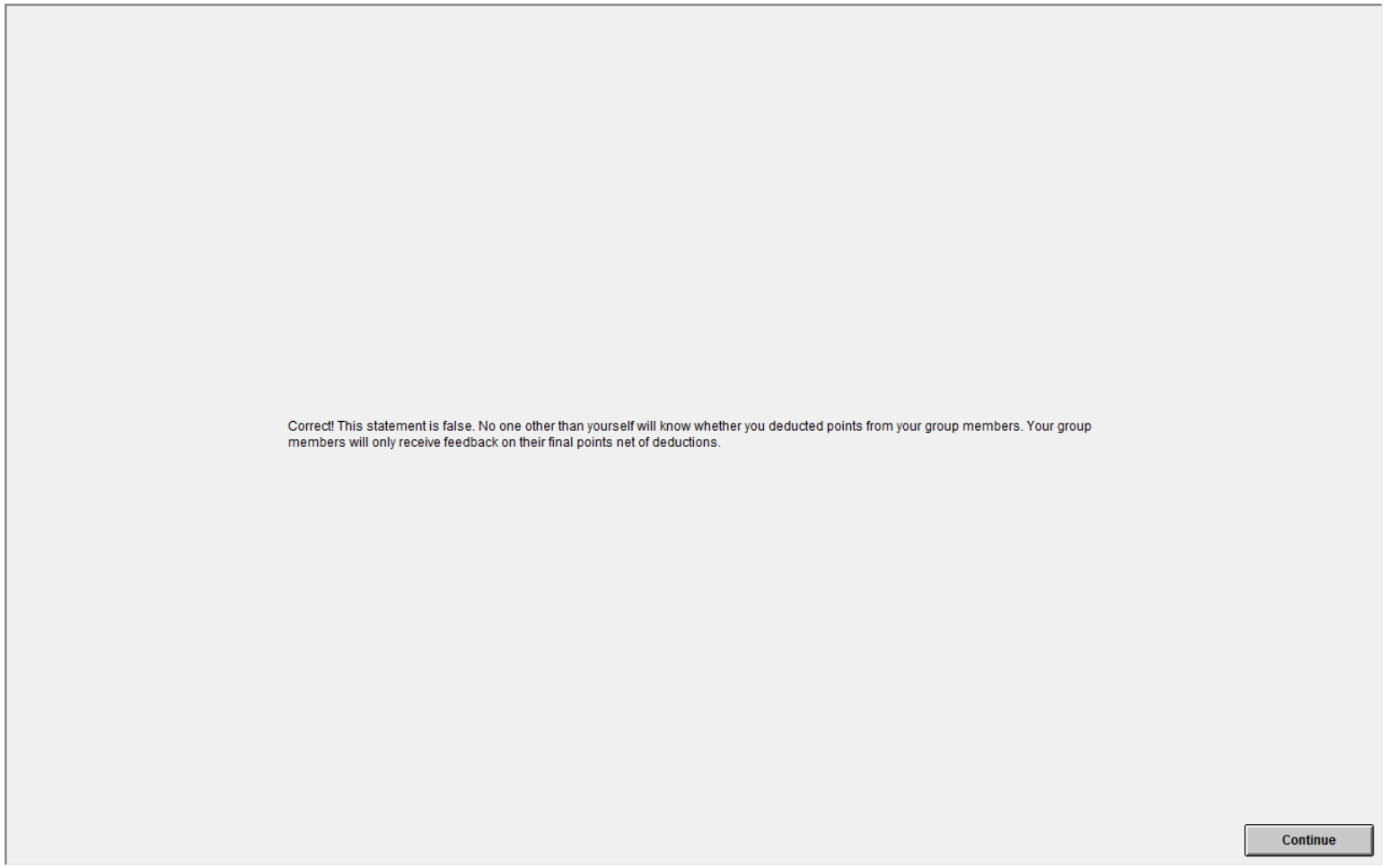
Screen 11


Correct! This statement is true. Deducting points from your group members will decrease their points and compensation.
Continue

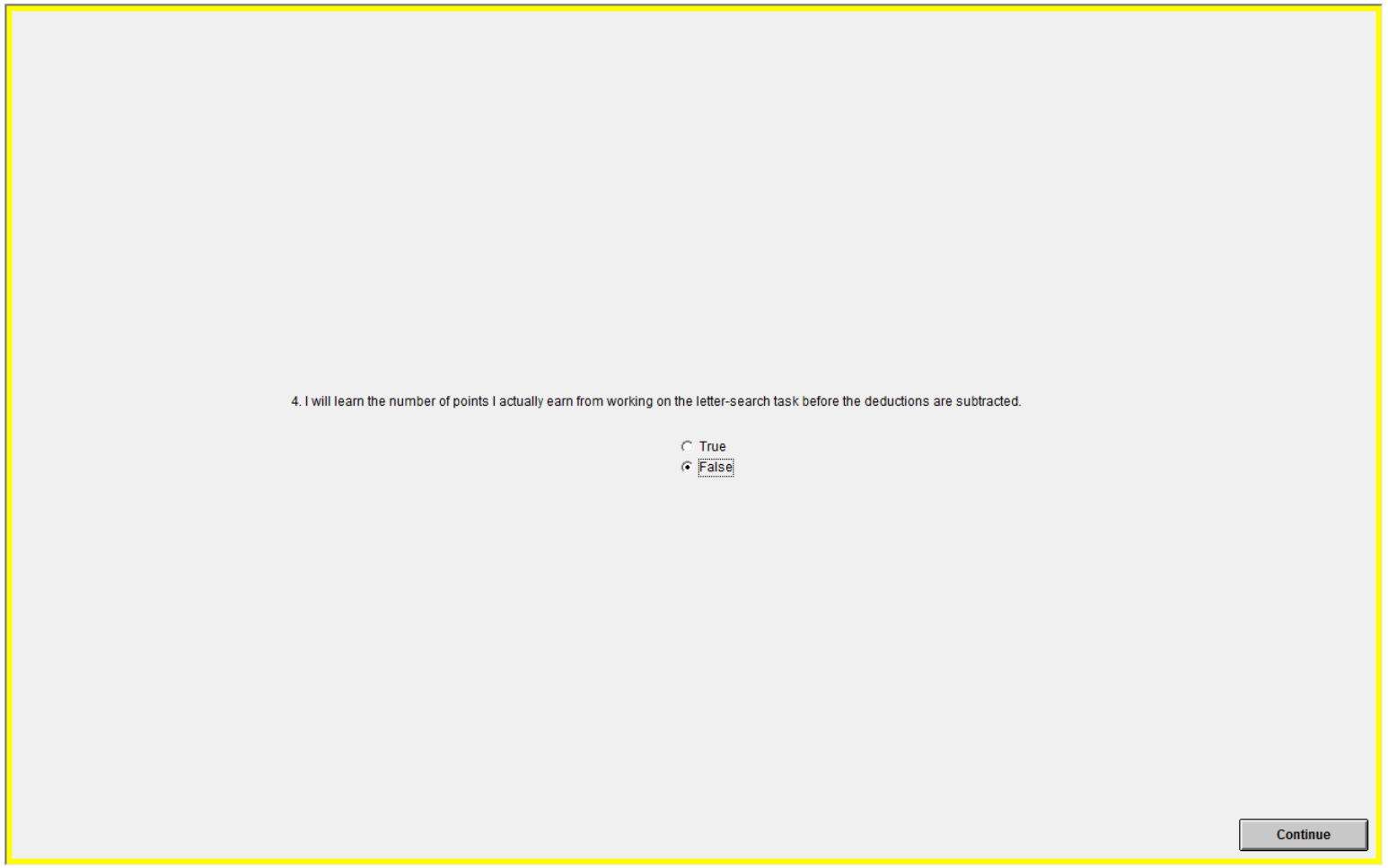
Screen 12


3. My group members will know whether I deducted points from them.
True
False
Continue

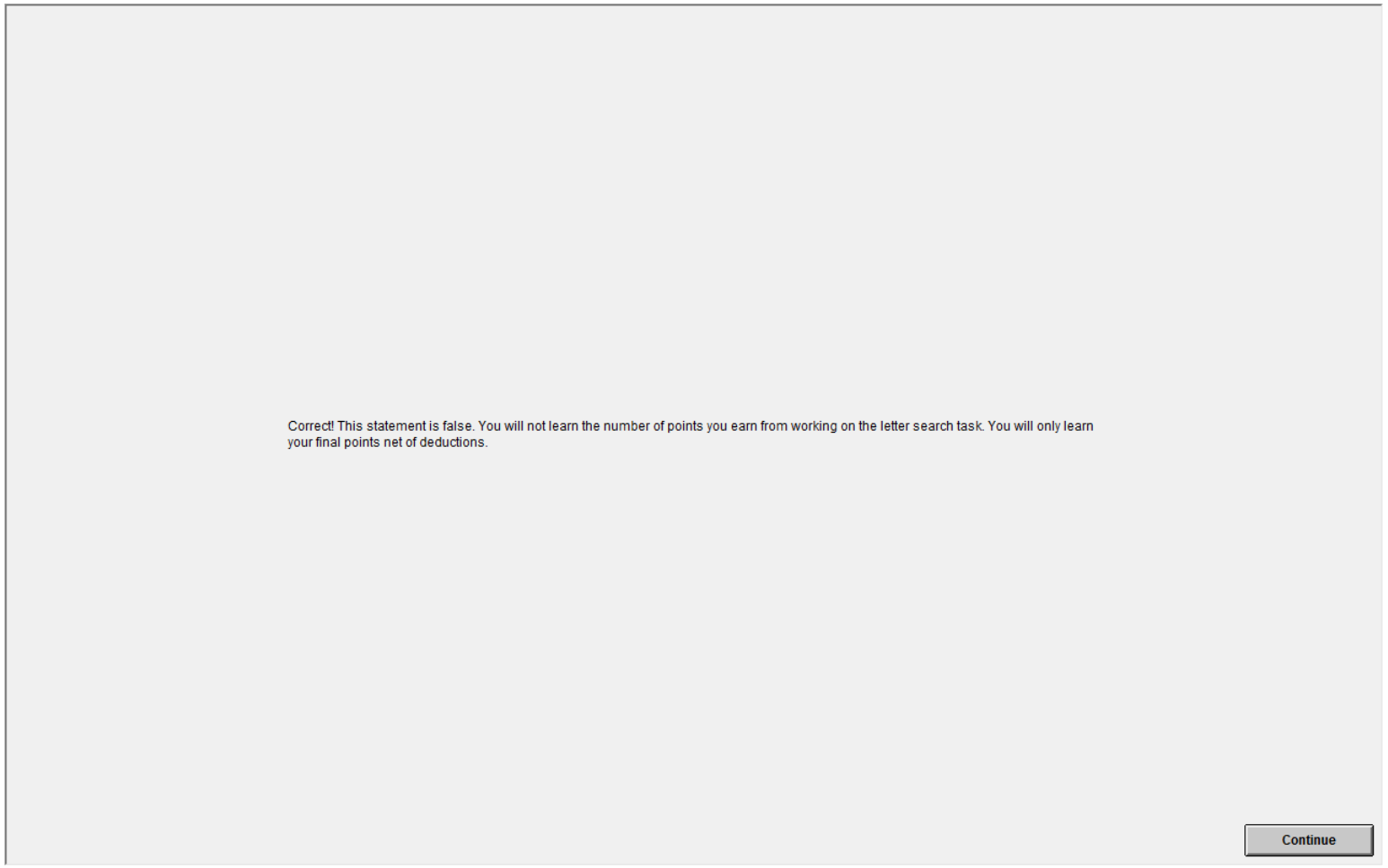
Screen 13


Correct! This statement is false. No one other than yourself will know whether you deducted points from your group members. Your group members will only receive feedback on their final points net of deductions.
Continue

Screen 14


4. I will learn the number of points I actually earn from working on the letter-search task before the deductions are subtracted.
True
False
Continue

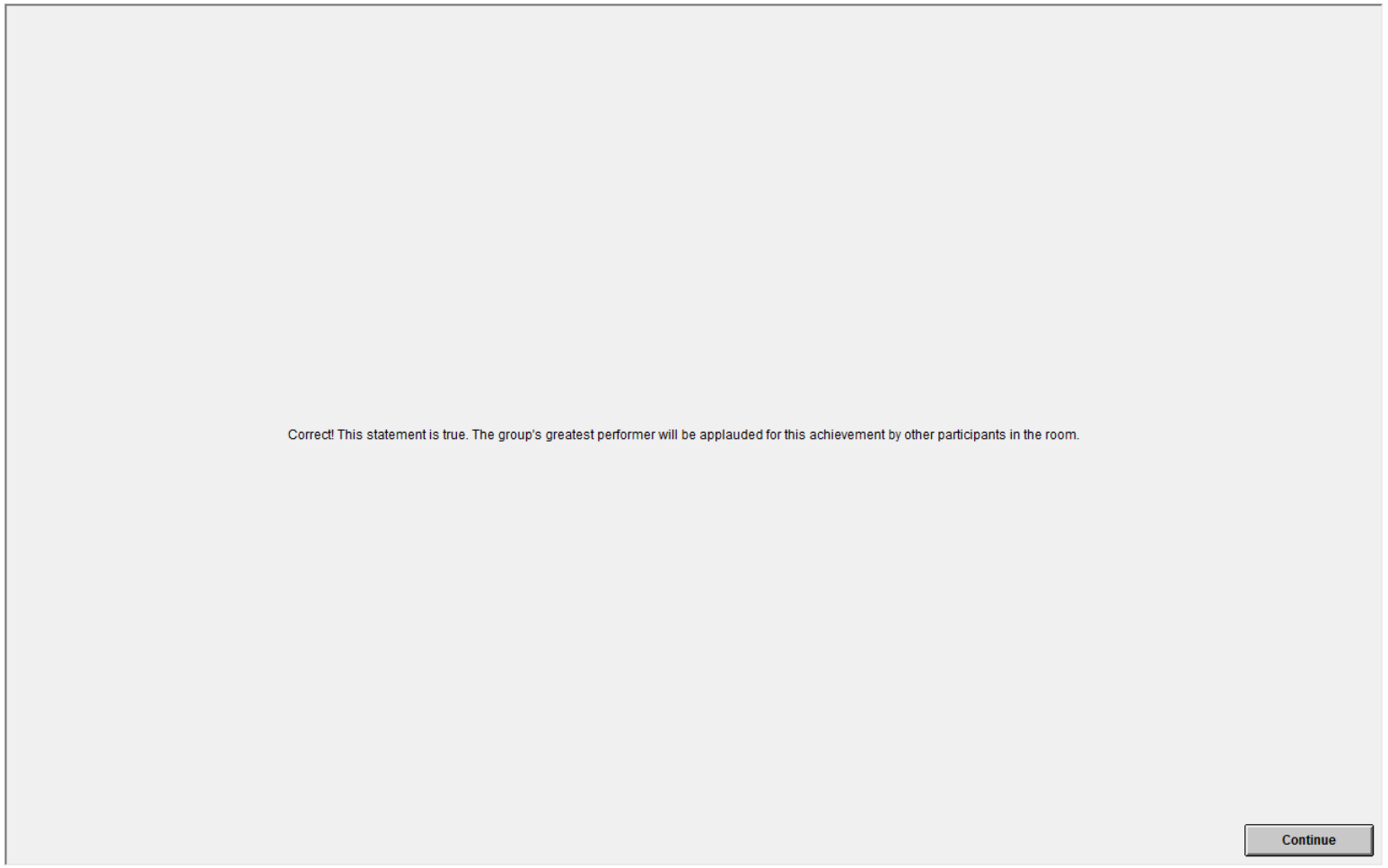
Screen 15


Correct! This statement is false. You will not learn the number of points you earn from working on the letter search task. You will only learn your final points net of deductions.
Continue

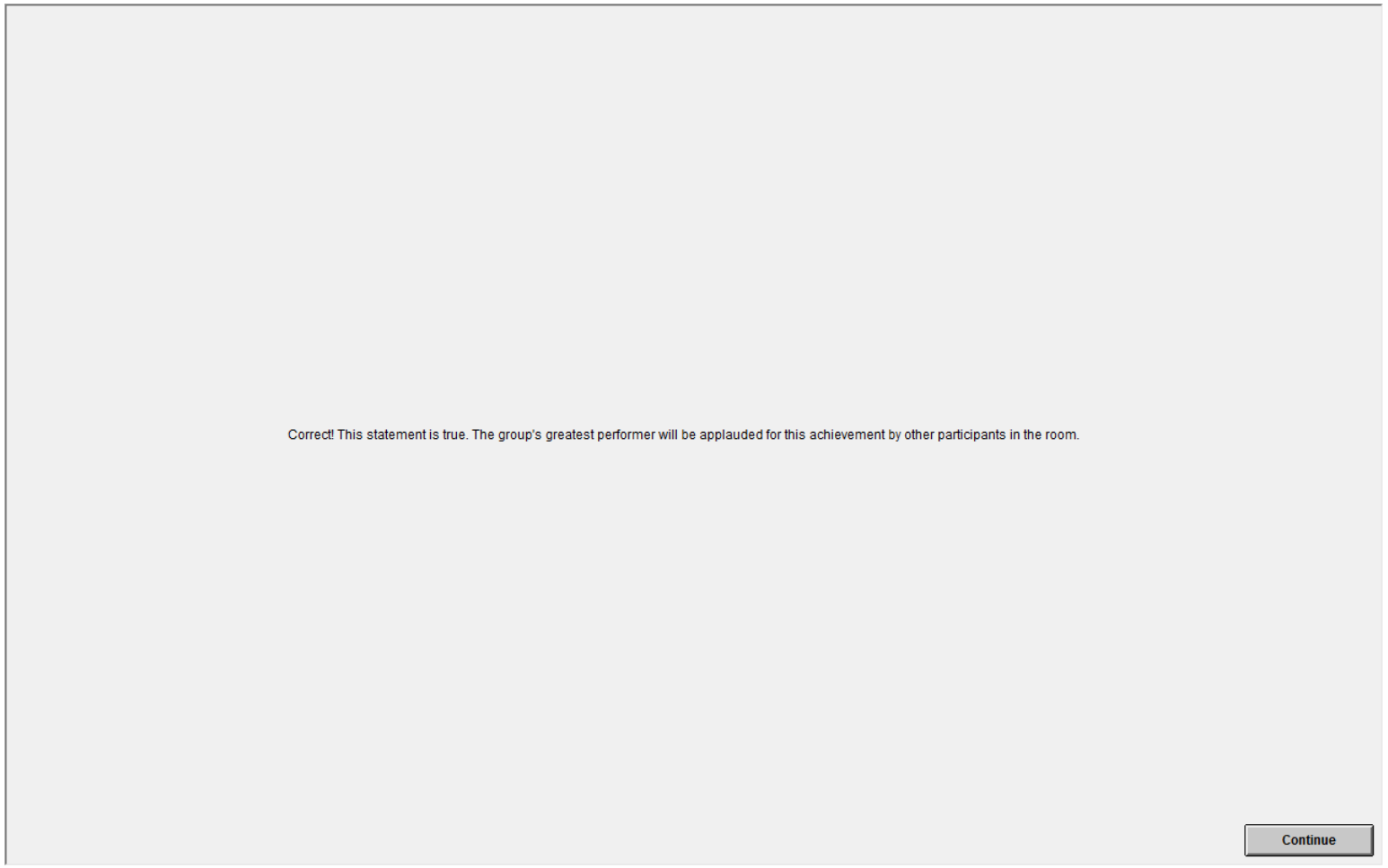
Screen 16


5. After completing the task, the computer program will prompt the group member with the most points net of deductions, thus the group's greatest performer to stand up to be applauded for this achievement by other participants in the room.
True
False
Continue

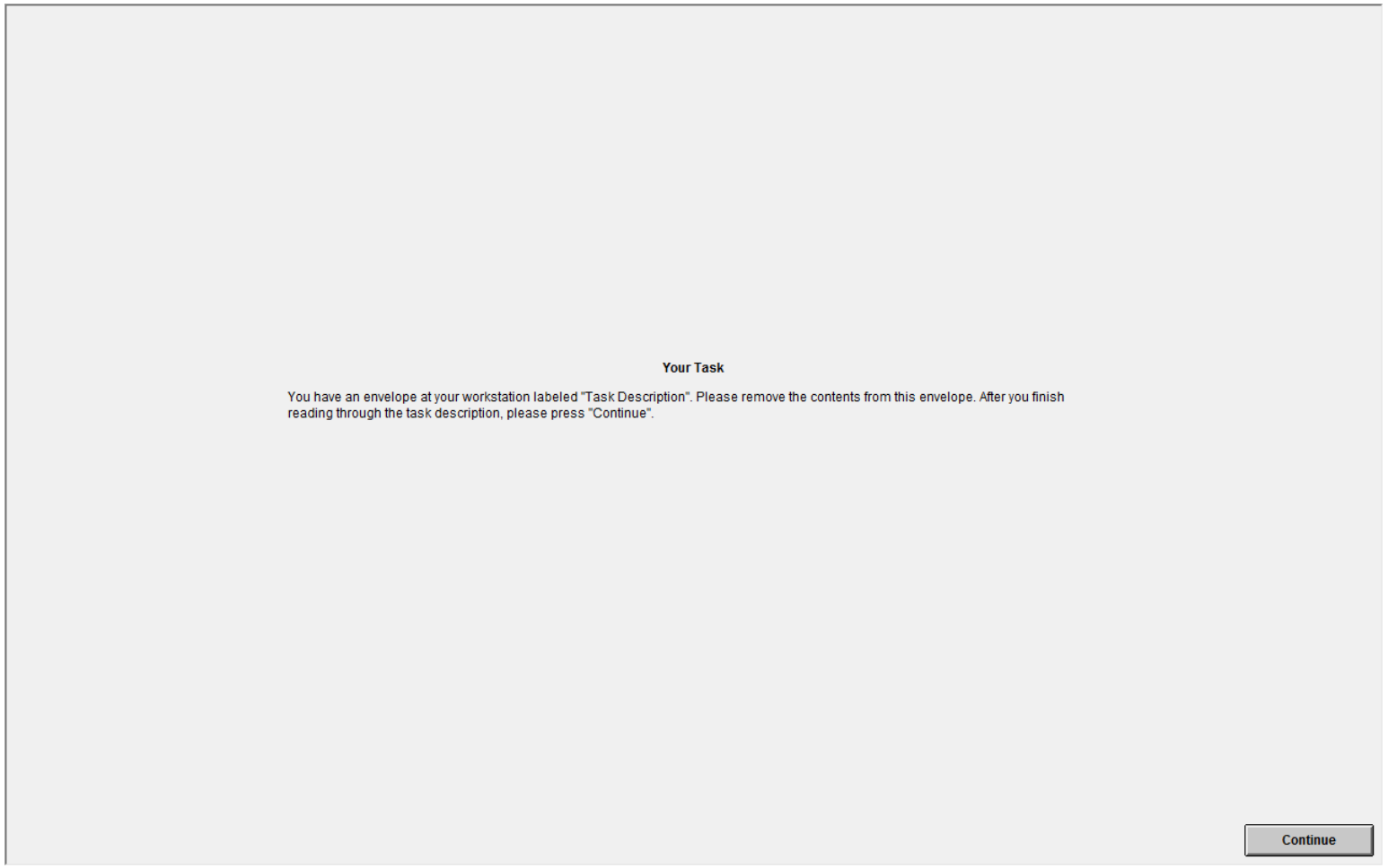
Screen 17


Correct! This statement is true. The group's greatest performer will be applauded for this achievement by other participants in the room.
Continue

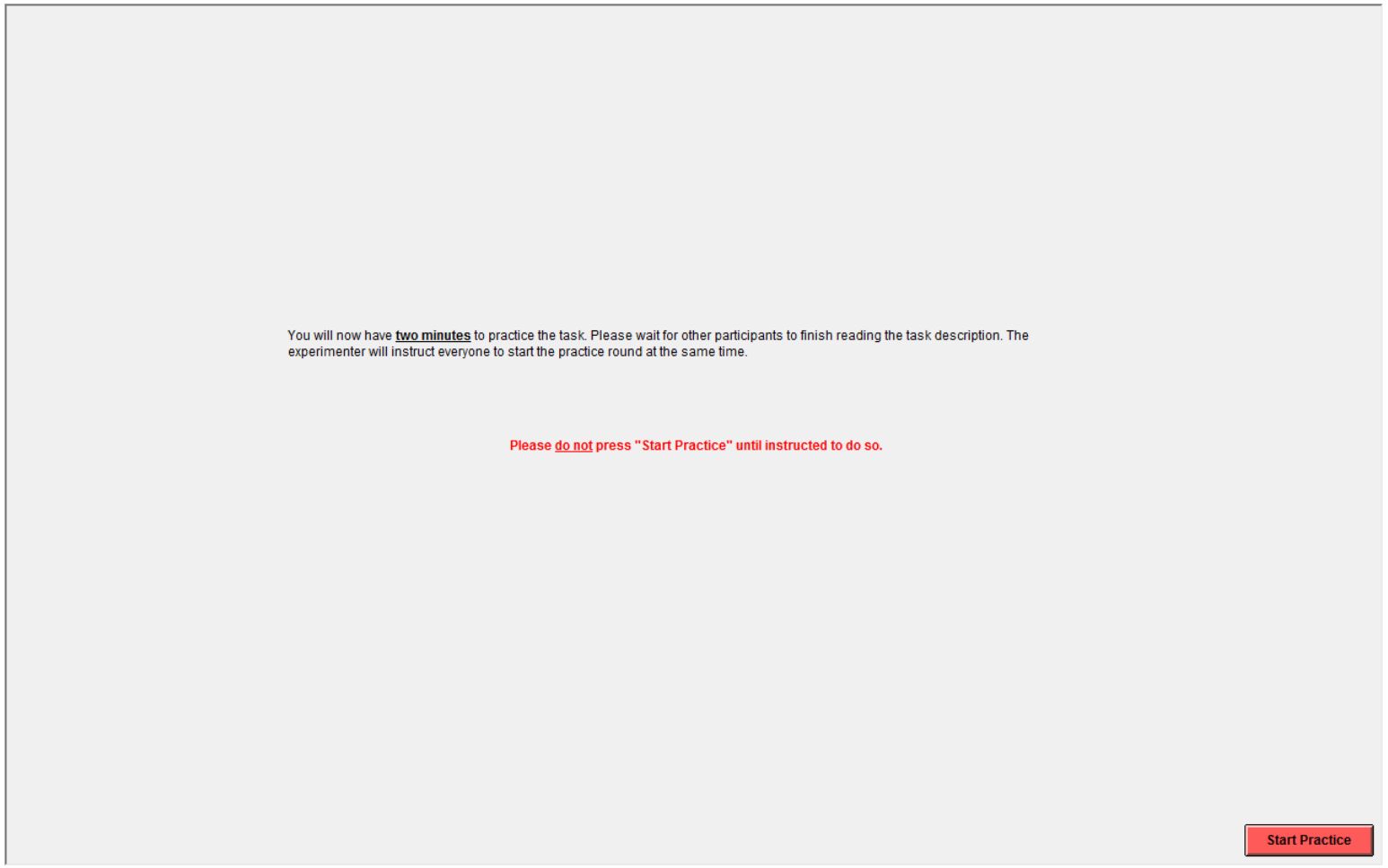
Screen 18


Correct! This statement is true. The group's greatest performer will be applauded for this achievement by other participants in the room.
Continue

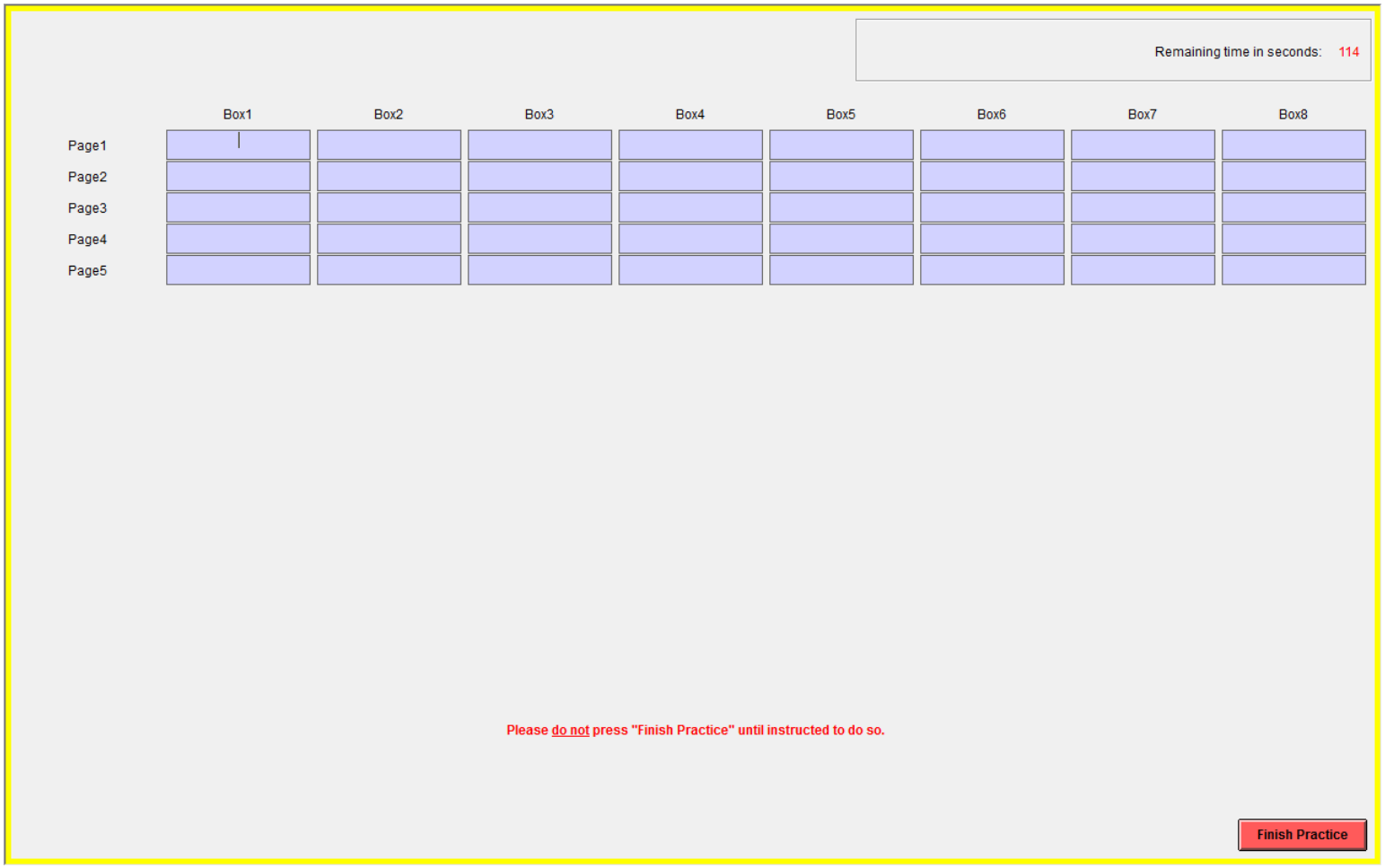
Screen 19


Your Task
You have an envelope at your workstation labeled "Task Description". Please remove the contents from this envelope. After you finish reading through the task description, please press "Continue".
Continue

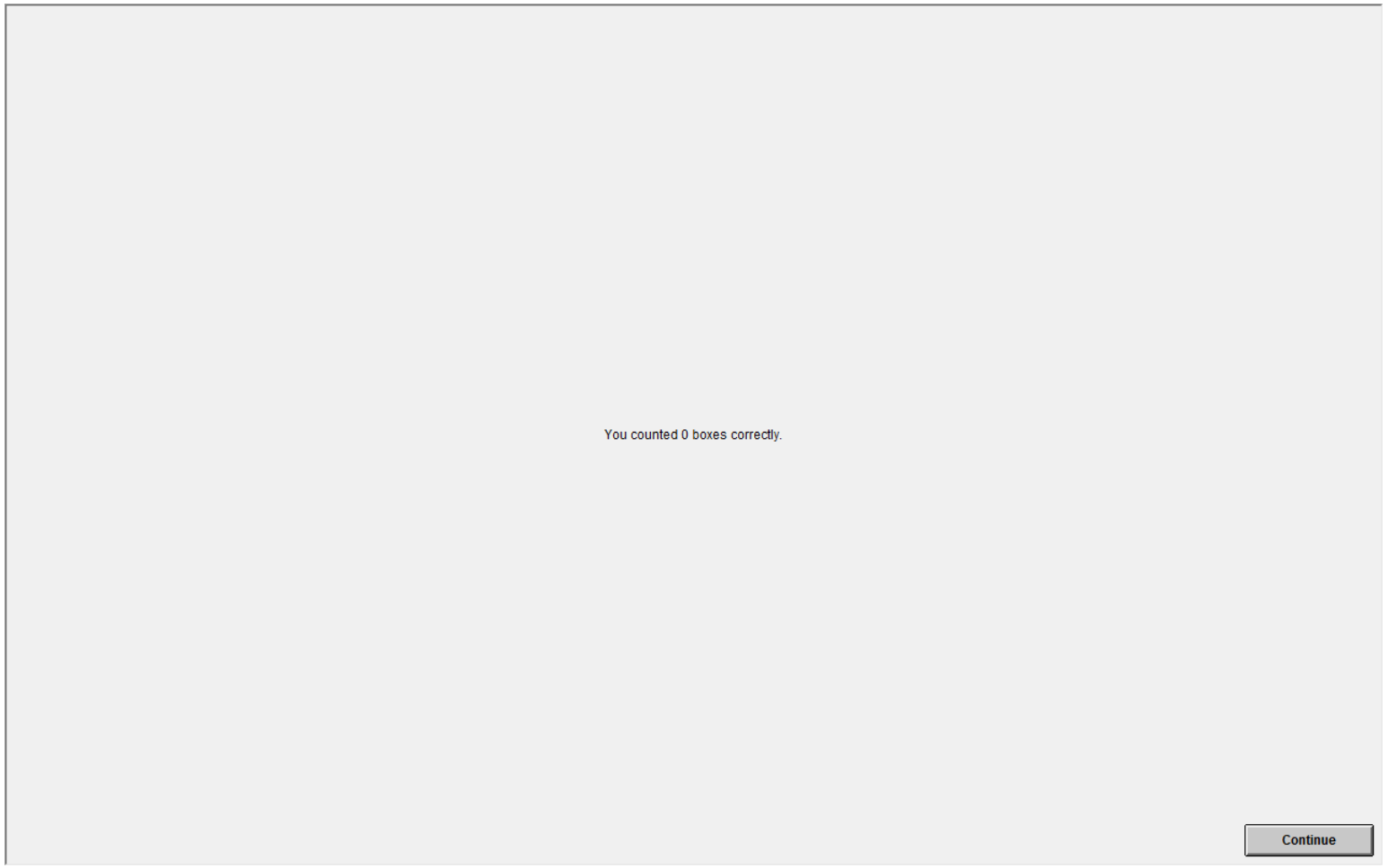
Screen 20


You will now have two minutes to practice the task. Please wait for other participants to finish reading the task description. The experimenter will instruct everyone to start the practice round at the same time.
Please do not press "Start Practice" until instructed to do so.
Start Practice

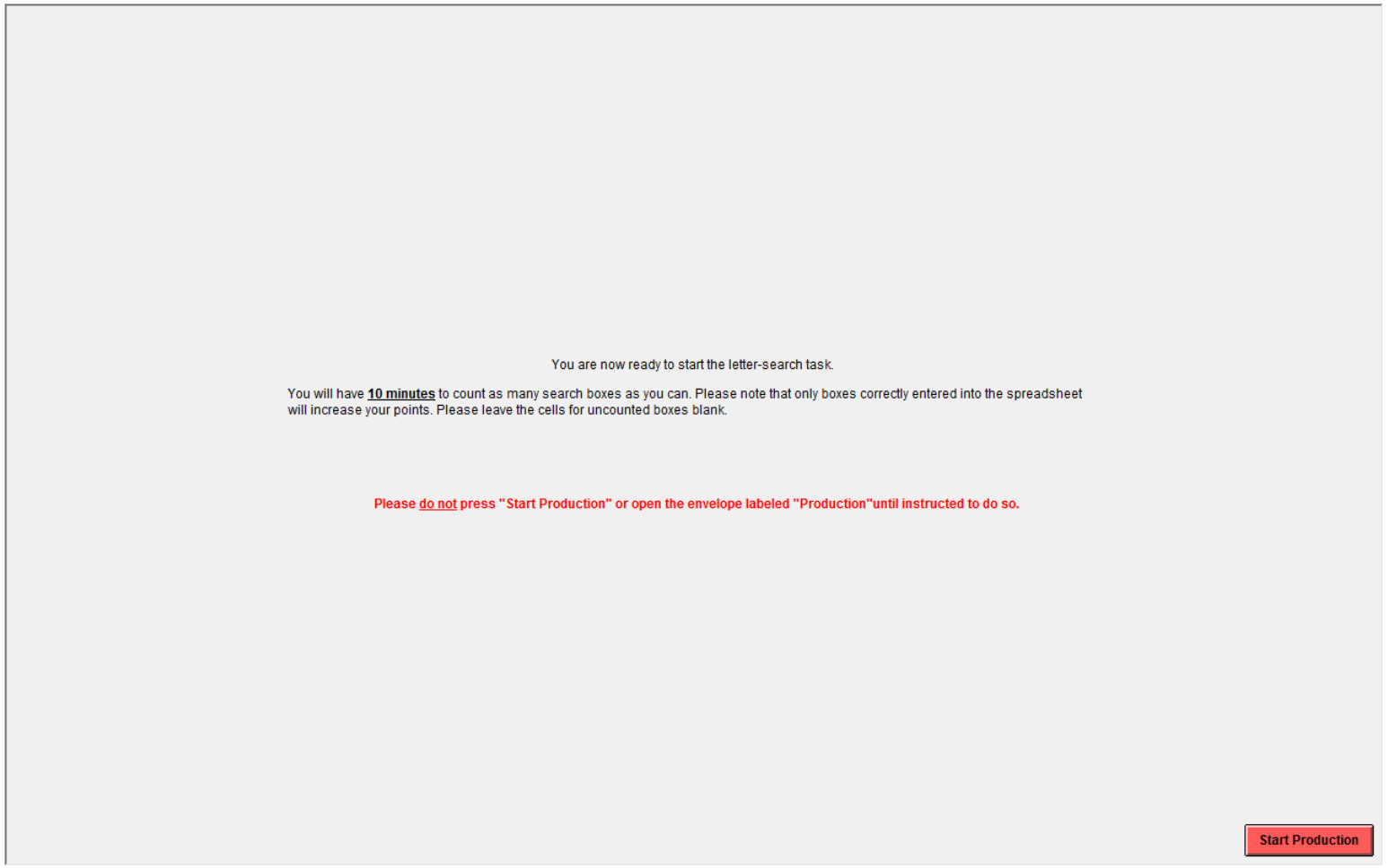
Screen 21


Remaining time in seconds: 114
Box1
Box2
Box3
Box4
Box5
Box6
Box7
Box8
Page1
Page2
Page3
Page4
Page5
Please do not press "Finish Practice" until instructed to do so.
Finish Practice

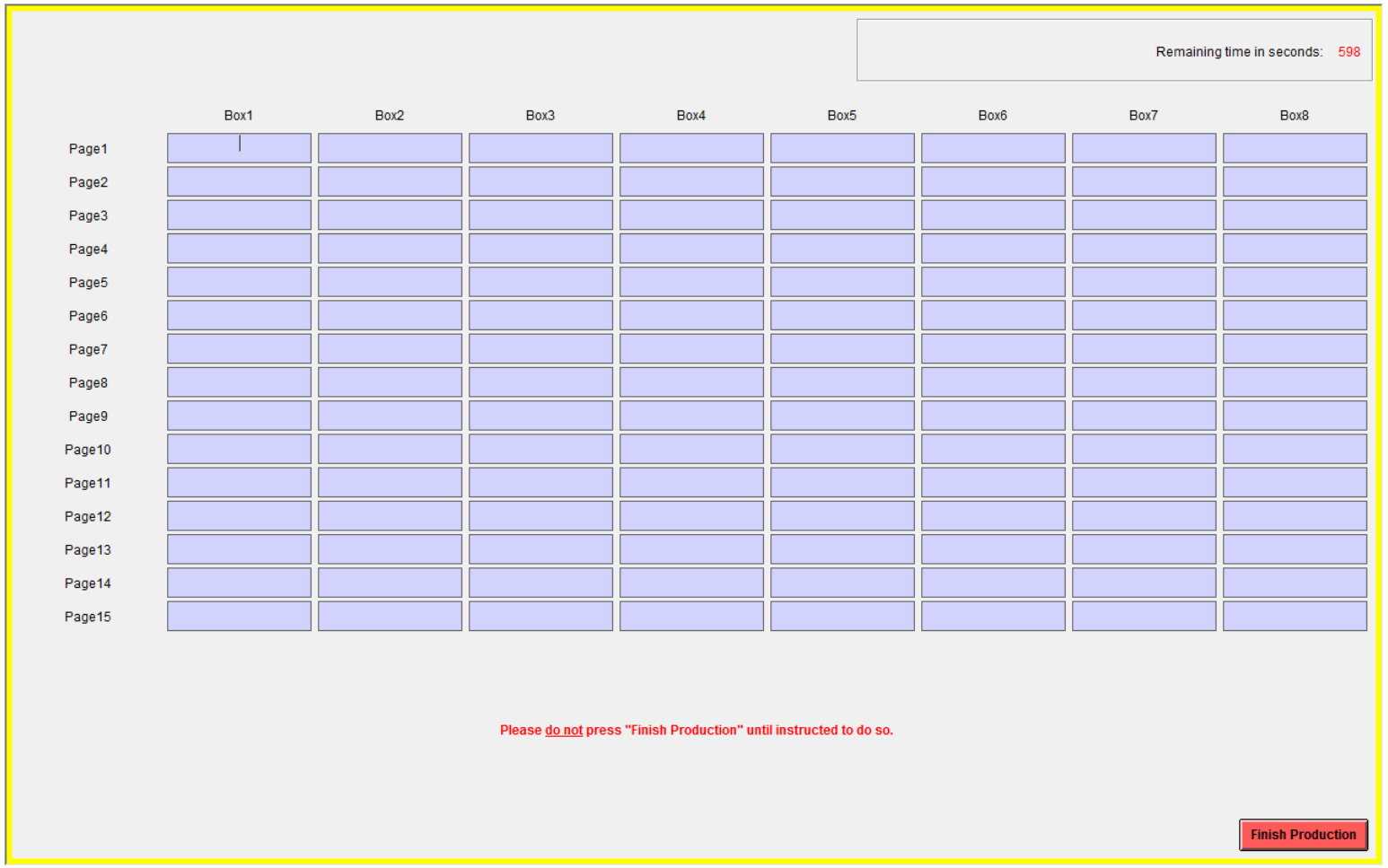
Screen 22



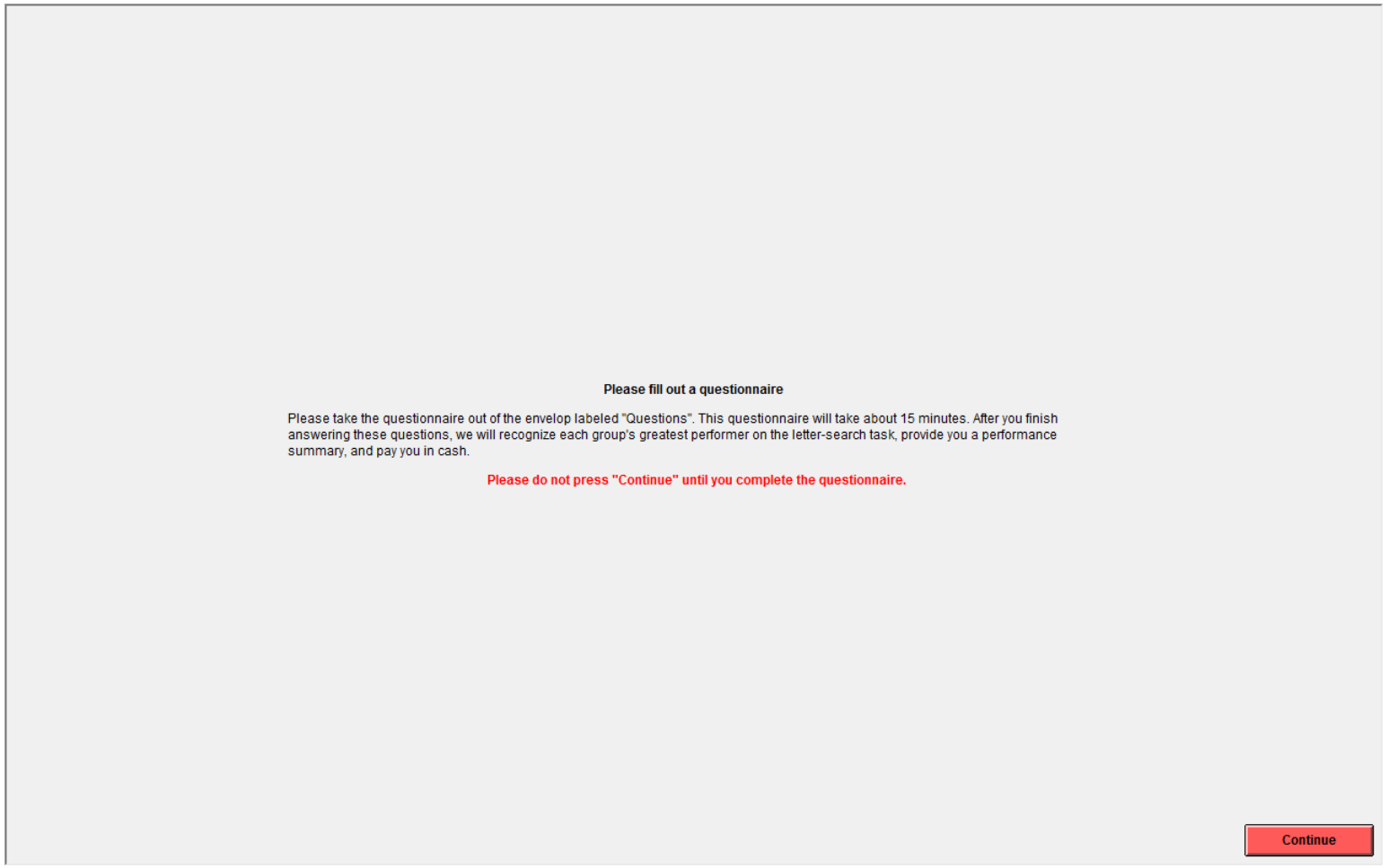
Screen 23


You are now ready to start the letter-search task.
You will have 10 minutes to count as many search boxes as you can. Please note that only boxes correctly entered into the spreadsheet will increase your points. Please leave the cells for uncounted boxes blank.
Please do not press "Start Production" or open the envelope labeled "Production"until instructed to do so.
Start Production

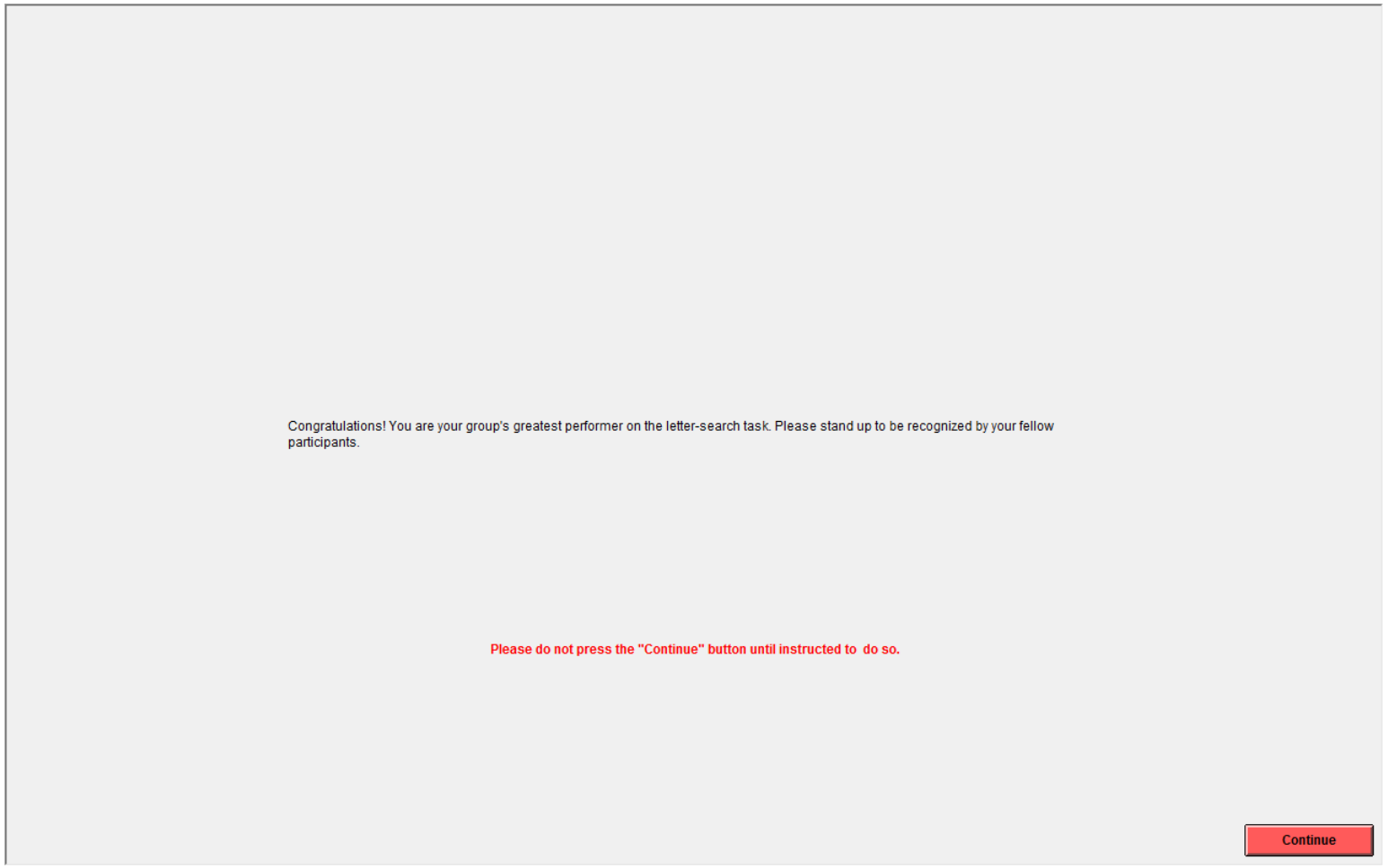
Screen 24


Remaining time in seconds: 598
Box1
Box2
Box3
Box4
Box5
Box6
Box7
Box8
Page1
Page2
Page3
Page4
Page5
Page6
Page7
Page8
Page9
Page10
Page11
Page12
Page13
Page14
Page15
Please do not press "Finish Production" until instructed to do so.
Finish Production

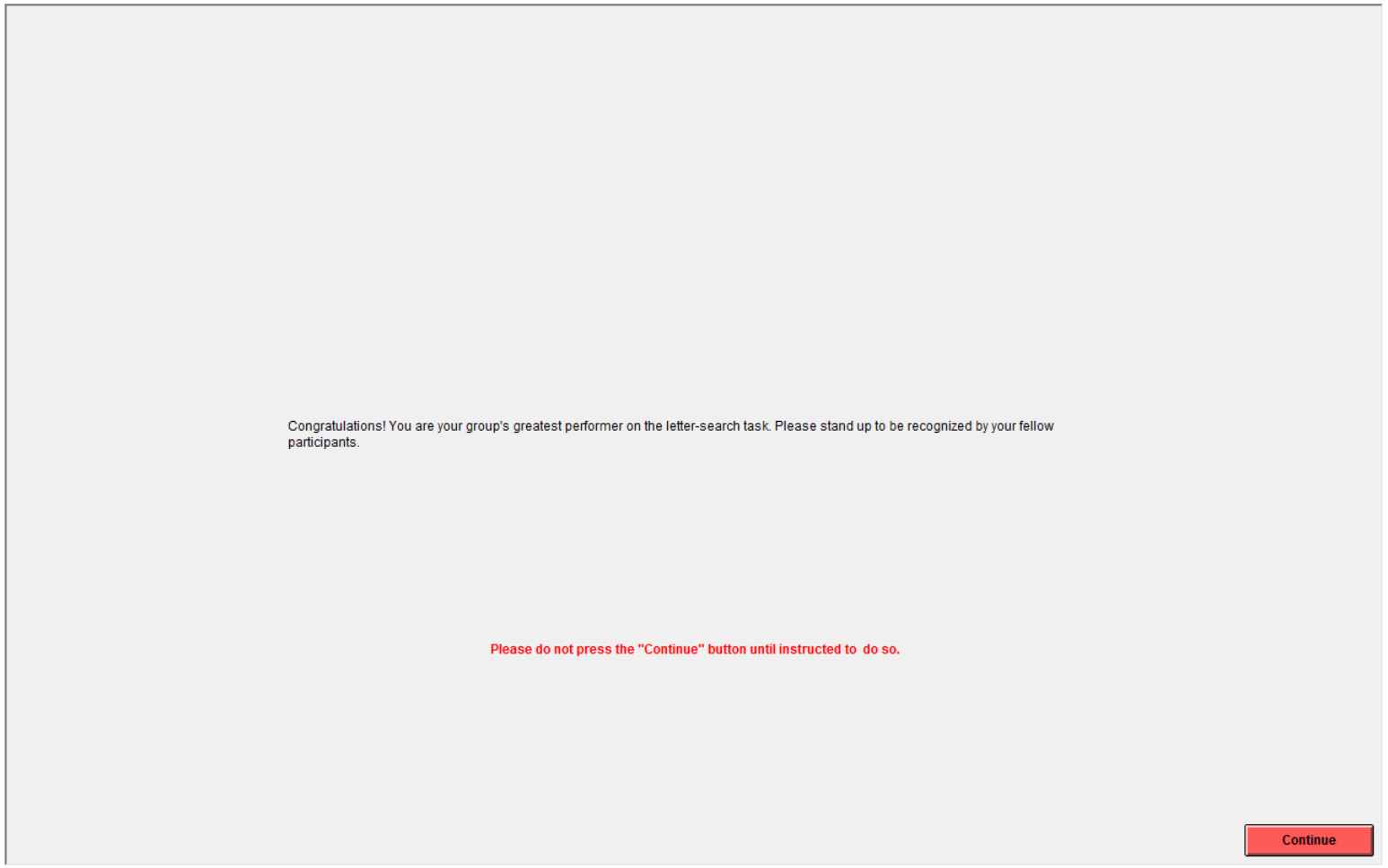
Screen 25


Please fill out a questionnaire
Please take the questionnaire out of the envelop labeled "Questions". This questionnaire will take about 15 minutes. After you finish answering these questions, we will recognize each group's greatest performer on the letter-search task, provide you a performance summary, and pay you in cash.
Please do not press "Continue" until you complete the questionnaire.
Continue

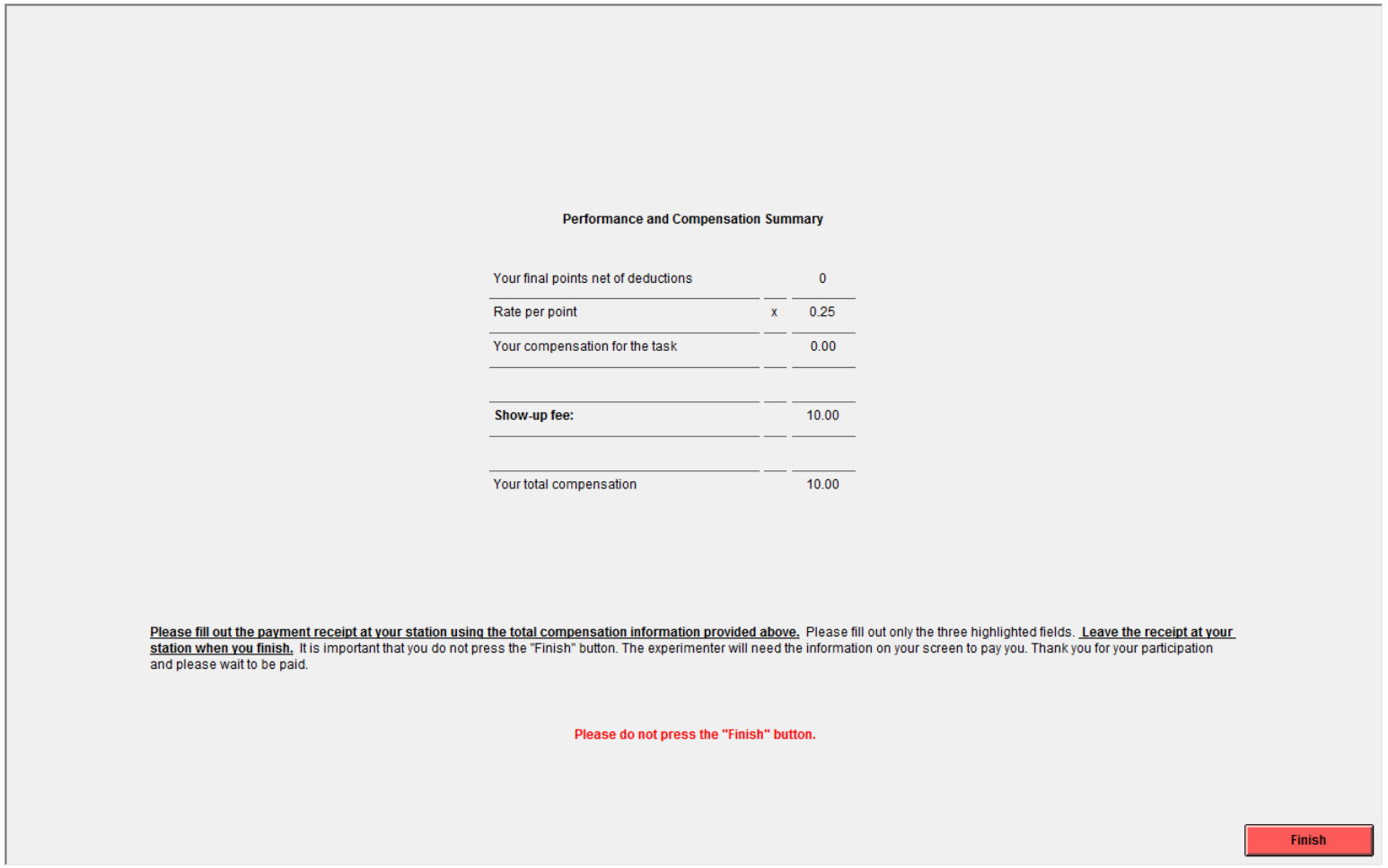
Screen 26A – top performer



Screen 26B – non-top performer

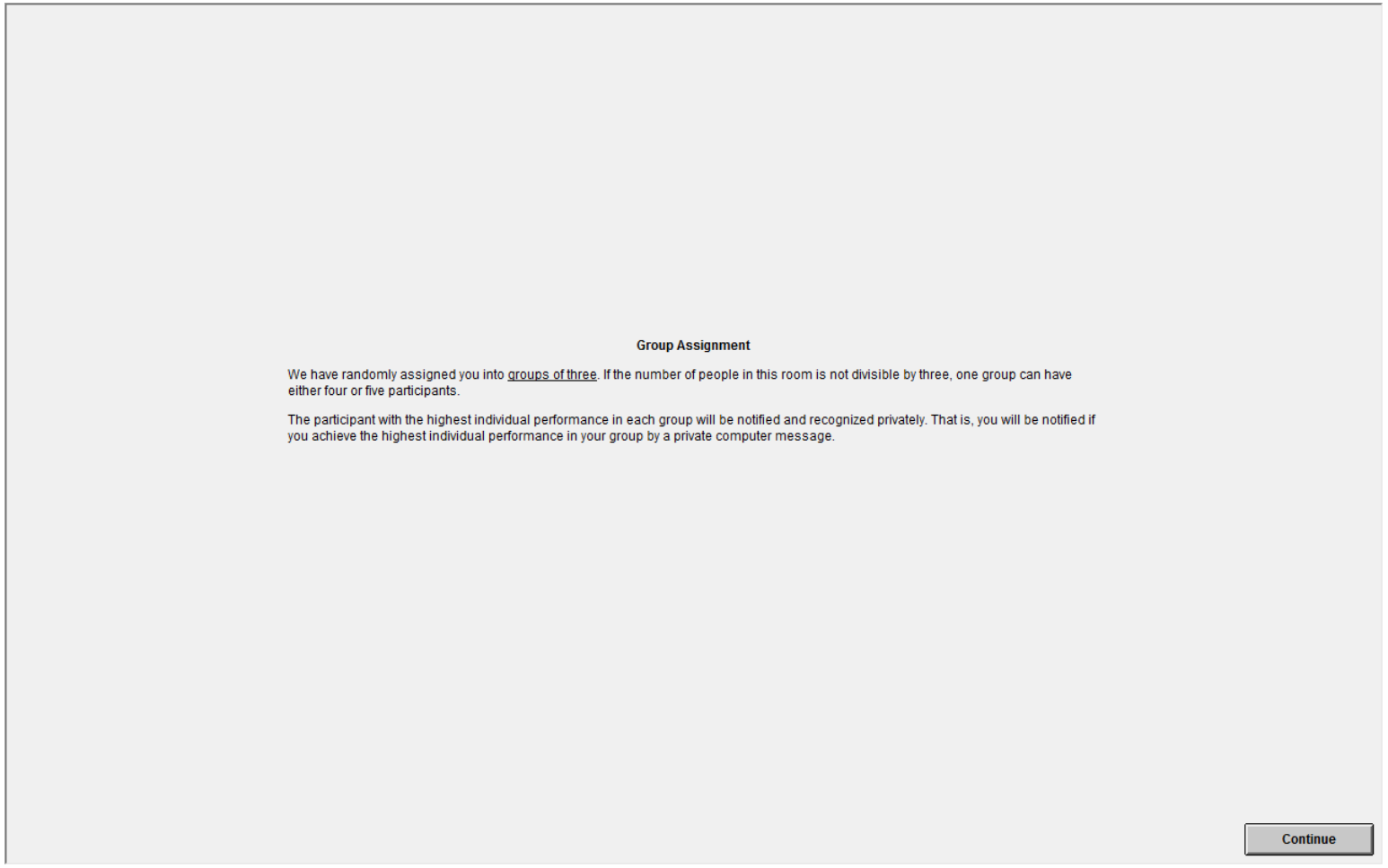


Screen 27


Performance and Compensation Summary
Your final points net of deductions 0
Rate per point x 0.25
Your compensation for the task 0.00
Show-up fee: 10.00
Your total compensation 10.00
Please fill out the payment receipt at your station using the total compensation information provided above. Please fill out only the three highlighted fields. Leave the receipt at your station when you finish. It is important that you do not press the "Finish" button. The experimenter will need the information on your screen to pay you. Thank you for your participation and please wait to be paid.
Please do not press the "Finish" button.
Finish

Manipulated Text for the Private Recognition Condition

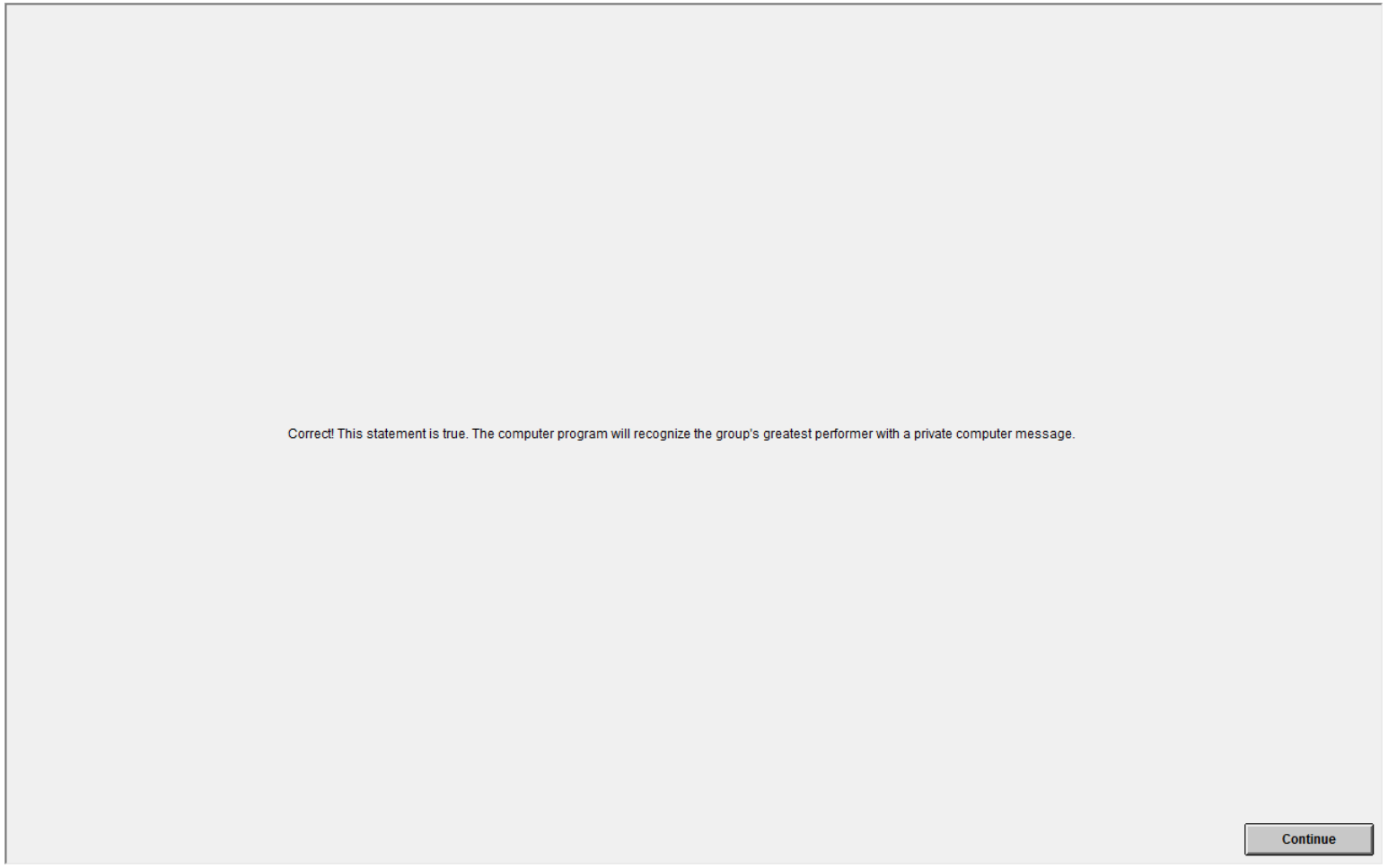
Screen 3


Group Assignment
We have randomly assigned you into groups of three. If the number of people in this room is not divisible by three, one group can have either four or five participants.
The participant with the highest individual performance in each group will be notified and recognized privately. That is, you will be notified if you achieve the highest individual performance in your group by a private computer message.
Continue

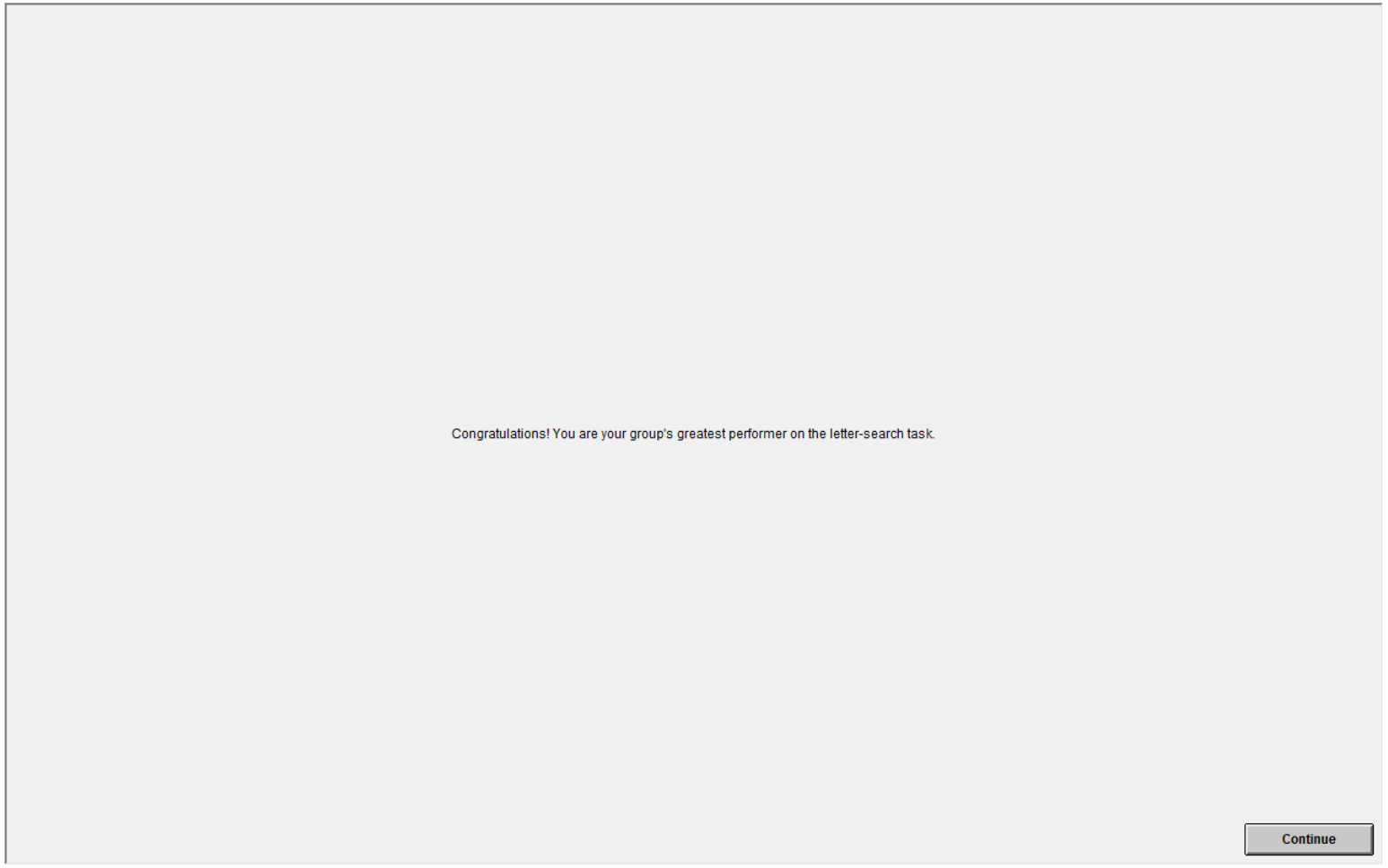
Screen 16


5. After completing the task, the computer program will recognize the group member with the most points net of deductions, thus the group's greatest performer with a private computer message.
True
False
Continue

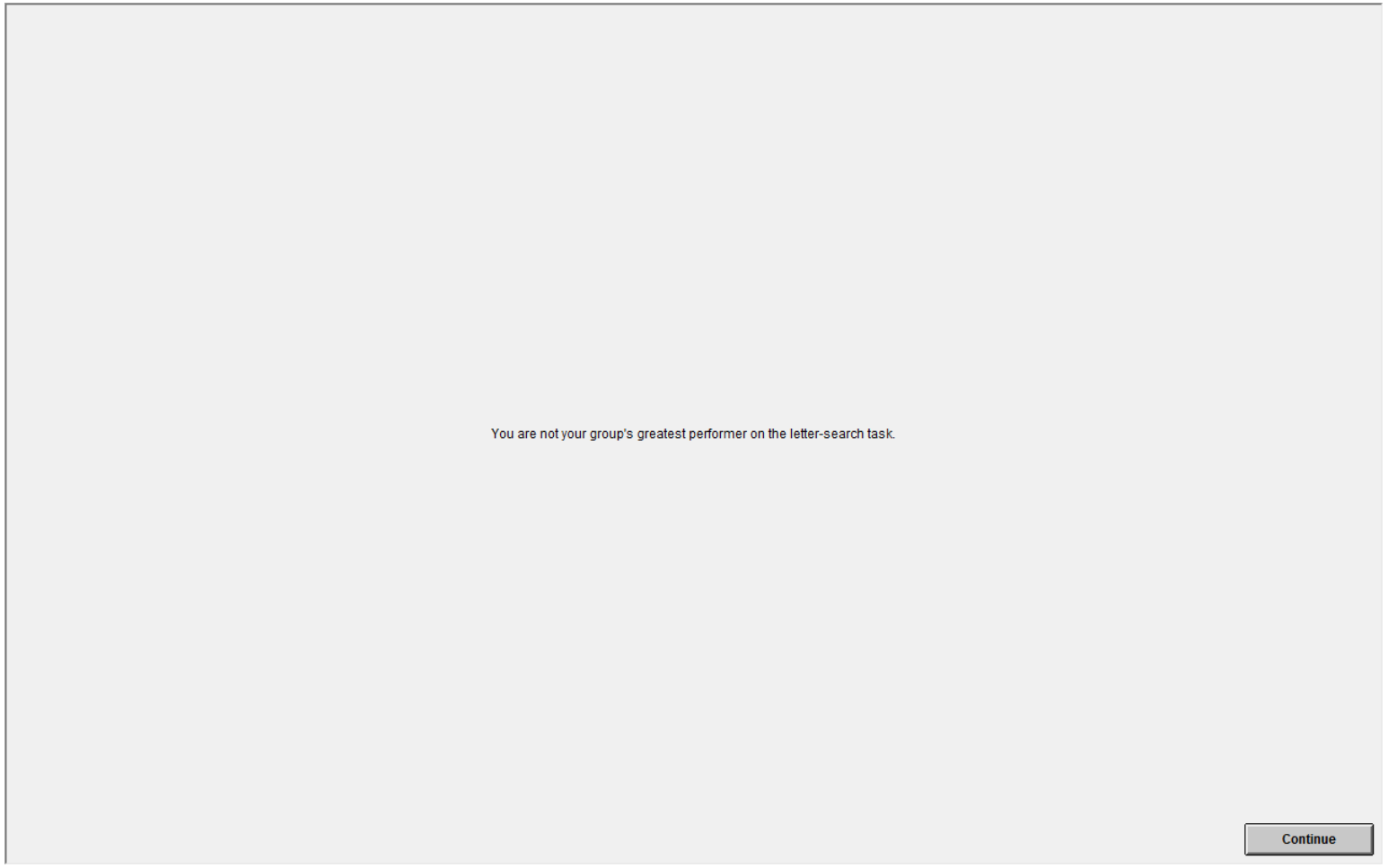
Screen 17


Correct! This statement is true. The computer program will recognize the group's greatest performer with a private computer message.
Continue

Screen 26A – top performer

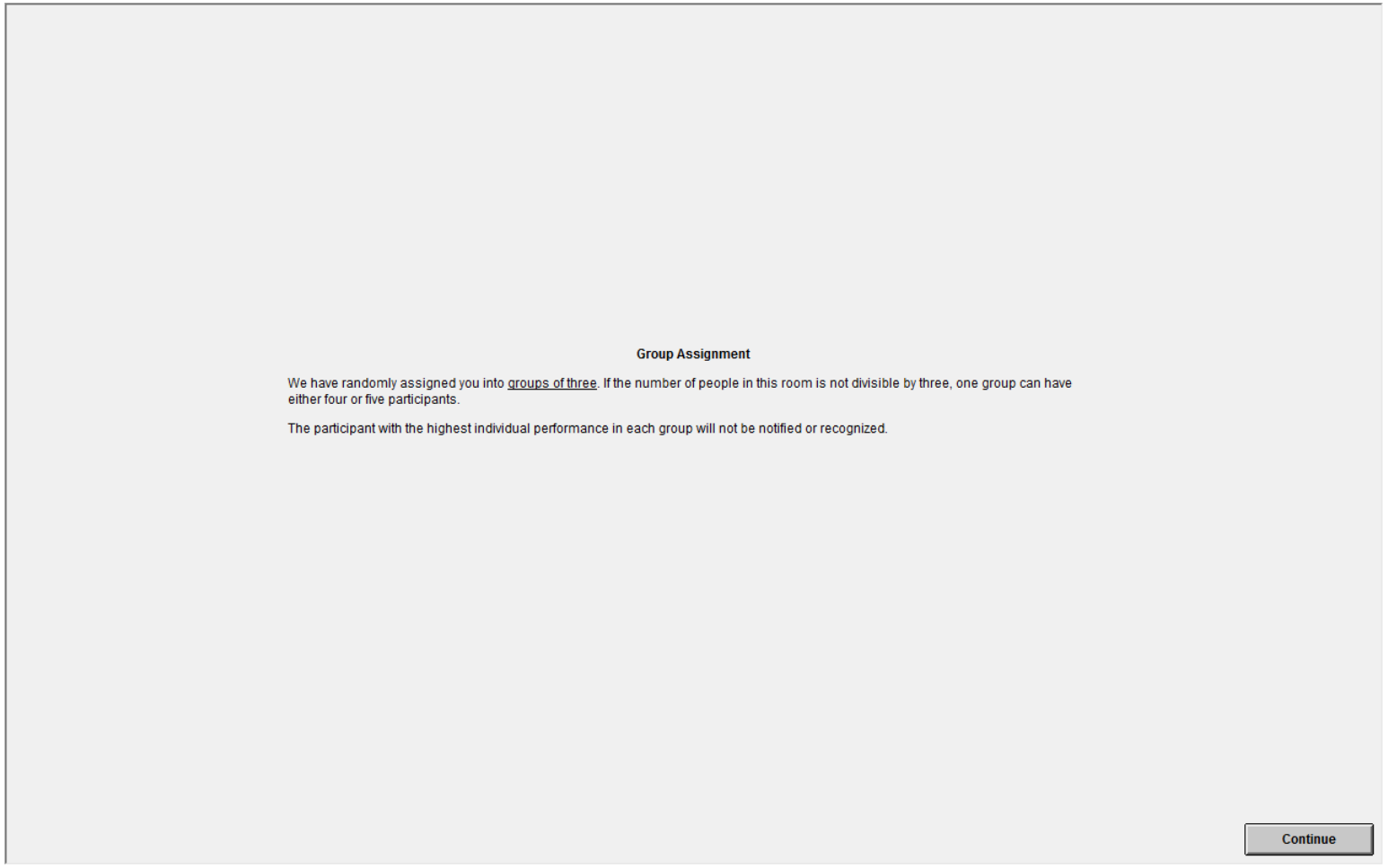


Screen 26B – non-top performer

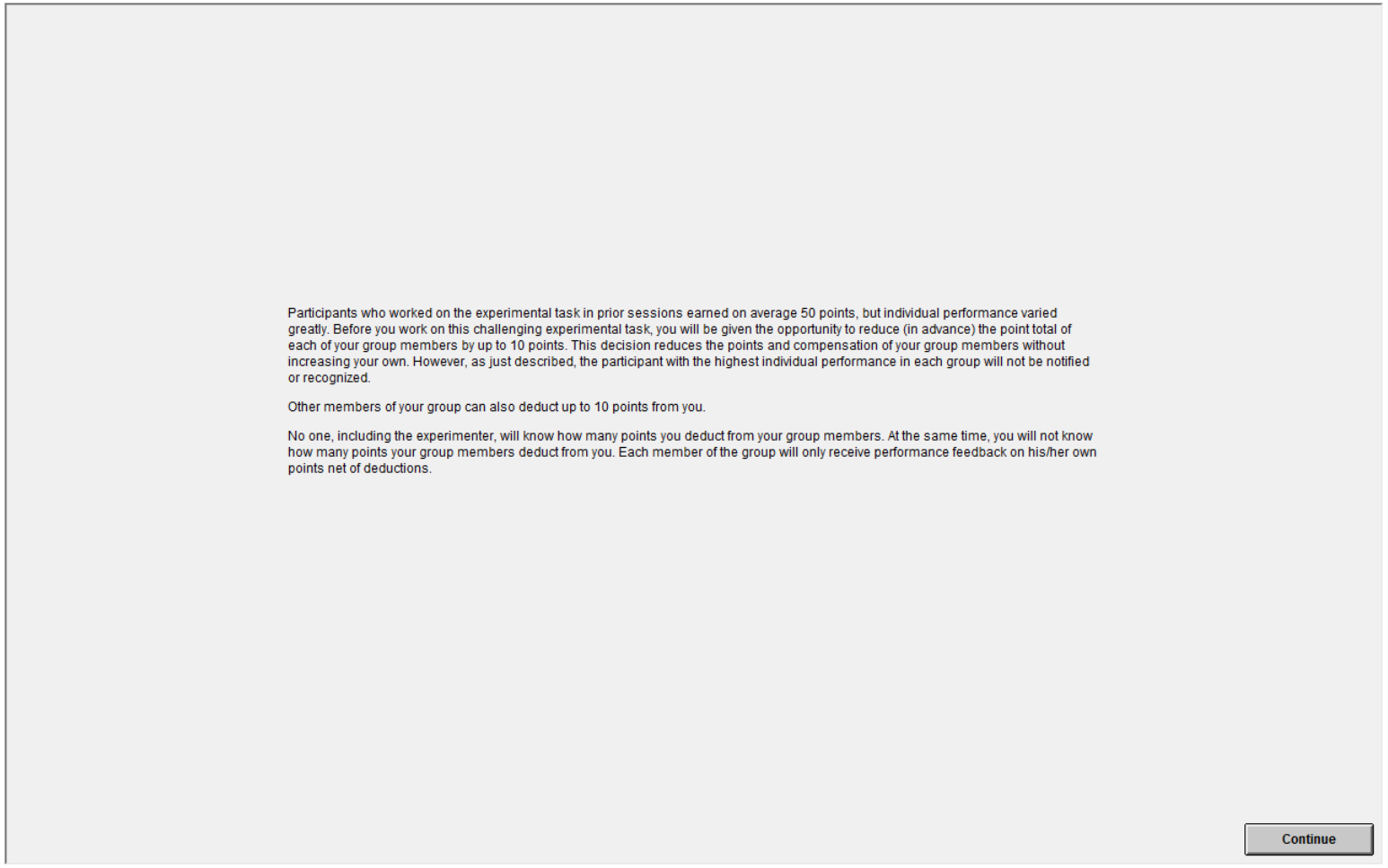


Manipulated Text for the No Recognition Condition

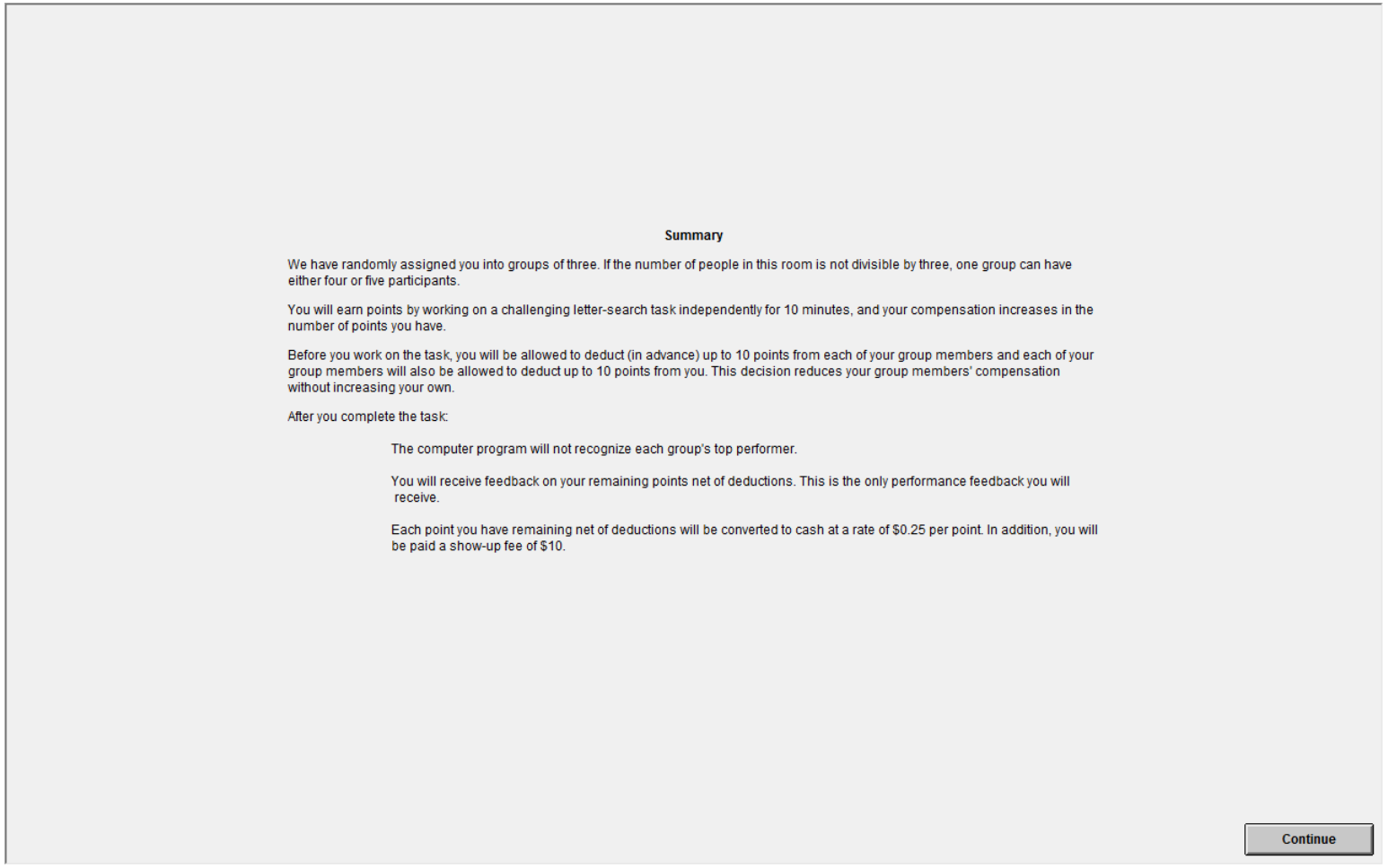
Screen 3


Group Assignment
We have randomly assigned you into groups of three. If the number of people in this room is not divisible by three, one group can have either four or five participants.
The participant with the highest individual performance in each group will not be notified or recognized.
Continue

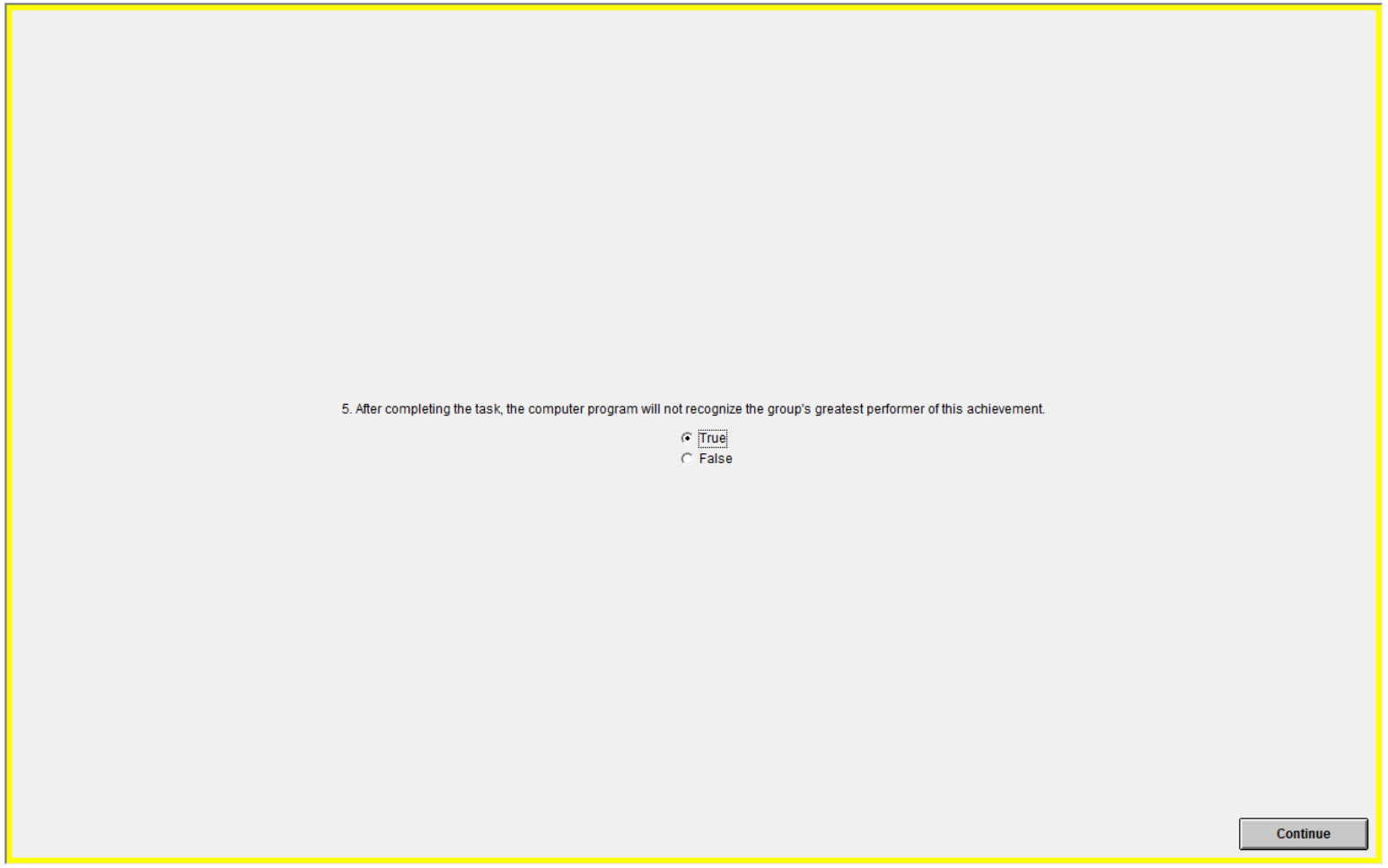
Screen 4


Participants who worked on the experimental task in prior sessions earned on average 50 points, but individual performance varied greatly. Before you work on this challenging experimental task, you will be given the opportunity to reduce (in advance) the point total of each of your group members by up to 10 points. This decision reduces the points and compensation of your group members without increasing your own. However, as just described, the participant with the highest individual performance in each group will not be notified or recognized.
Other members of your group can also deduct up to 10 points from you.
No one, including the experimenter, will know how many points you deduct from your group members. At the same time, you will not know how many points your group members deduct from you. Each member of the group will only receive performance feedback on his/her own points net of deductions.
Continue

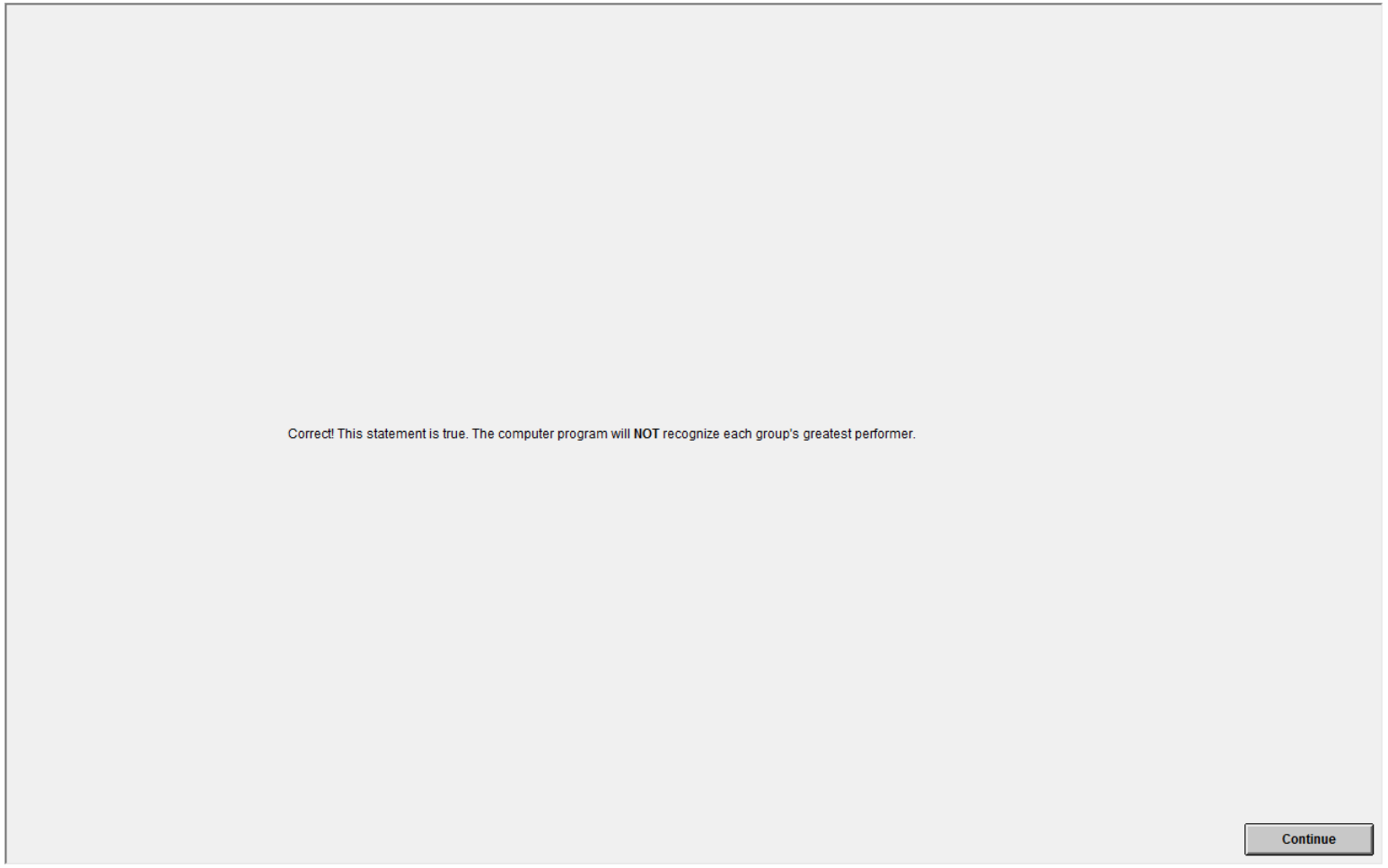
Screen 6


Summary
We have randomly assigned you into groups of three. If the number of people in this room is not divisible by three, one group can have either four or five participants.
You will earn points by working on a challenging letter-search task independently for 10 minutes, and your compensation increases in the number of points you have.
Before you work on the task, you will be allowed to deduct (in advance) up to 10 points from each of your group members and each of your group members will also be allowed to deduct up to 10 points from you. This decision reduces your group members' compensation without increasing your own.
After you complete the task:
The computer program will not recognize each group's top performer.
You will receive feedback on your remaining points net of deductions. This is the only performance feedback you will receive.
Each point you have remaining net of deductions will be converted to cash at a rate of $0.25 per point. In addition, you will be paid a show-up fee of $10.
Continue

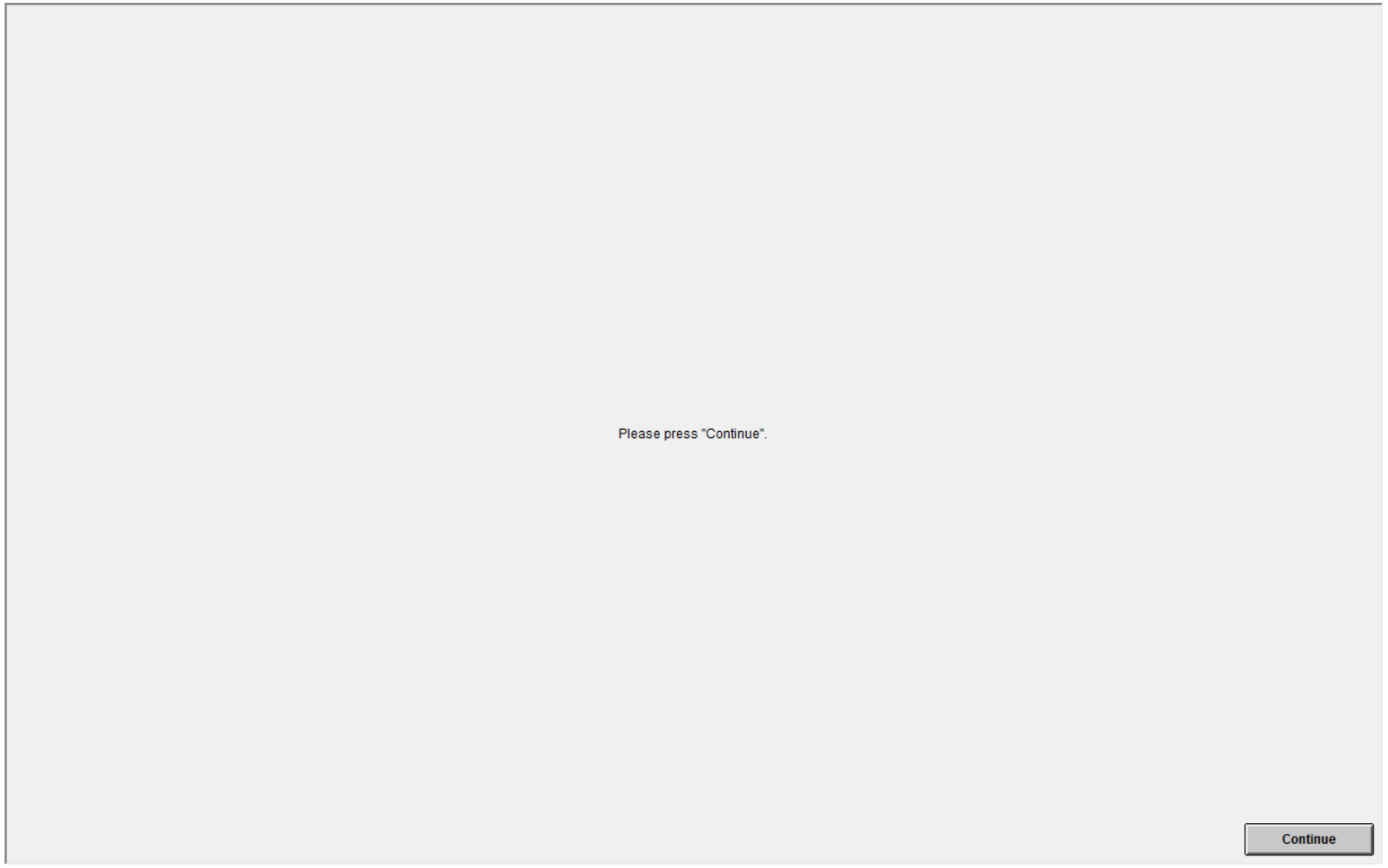
Screen 16


5. After completing the task, the computer program will not recognize the group's greatest performer of this achievement.
True
False
Continue

Screen 17


Correct! This statement is true. The computer program will **NOT** recognize each group's greatest performer.
Continue

Screen 26

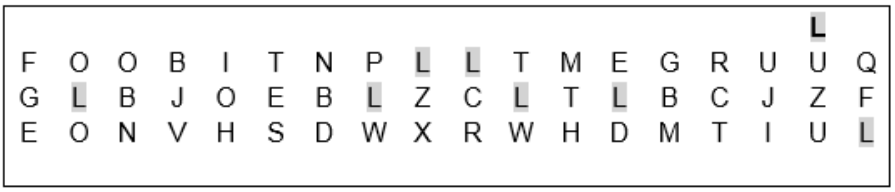


Task Description

Task Description

You have an envelope labeled "Production" at your station. It contains 15 pages. On each page, there are 8 boxes of random letters (labeled 1 through 8). Each box has a single letter (the search letter) in the top right hand corner. Below the search letter is a 3-row by 18-column block of letters. Your task is to determine the number of times the search letter appears in the corresponding box of letters.

An example of this task is provided below. In this example, letter "**L**" (the highlighted letter in the top right corner) is the search letter. The box of letters (the search box) contains 7 "**L**"s. The answer for this box is therefore "7". If a search letter does not appear in its corresponding search box, the answer for the search box would be "0".



You will record your answer in the appropriate cell in a computer spreadsheet at your workstation. Once you enter the answer for one search box and hit the "tab" key, you will be allowed to enter the answer for the next search box. Note: you may also use the "arrow" or "enter" keys as well as the computer mouse to navigate in the spreadsheet.

You will work on this task for 10 minutes. You will count as many search boxes as you can and record the answers in the computer spreadsheet. The computer program will give you one point for each correct answer recorded in the computer spreadsheet. This task may seem easy but it is very challenging. Good performance demands skill as well as a tremendous amount of concentration and endurance.

To make sure that you understand the task, you will next practice the task for two minutes. Included in this envelope, you will find five pages of search boxes that are similar to the ones included in the "Production" envelop. Please do not start counting these boxes until instructed to do so. The experimenter will instruct everyone to start the practice round at the same time. You will not be compensated for your performance in the practice round.

First Production Page

1 .

																H	
O	H	P	S	Y	F	N	P	Z	A	P	A	B	D	N	D	K	J
M	Q	I	D	W	K	I	A	I	T	T	G	U	H	Q	C	G	J
O	N	B	J	C	D	N	G	N	Q	A	S	E	B	E	R	E	L

2 .

																C	
F	D	D	G	K	H	V	E	J	I	I	N	D	T	S	U	G	S
B	E	U	Y	S	K	G	N	X	H	I	N	T	D	Z	A	J	J
A	A	I	W	V	E	R	X	P	P	M	Q	U	C	E	N	I	P

3 .

																V	
A	T	J	V	O	S	U	Y	E	K	C	Q	E	M	C	D	N	S
X	P	G	I	Q	R	P	Z	Z	A	M	U	Y	P	Z	T	C	O
K	L	I	H	L	T	Y	S	R	R	K	G	S	H	H	H	F	G

4 .

																Y	
S	U	U	U	P	S	S	A	B	M	N	I	O	S	M	K	U	U
T	J	G	F	E	N	R	X	K	W	W	N	A	F	H	W	F	H
A	R	B	W	J	R	P	W	G	T	C	S	K	I	V	H	M	W

5 .

																T	
M	H	P	C	S	T	N	M	F	L	L	L	D	M	Y	I	R	I
Z	Q	Z	P	F	L	Q	Q	M	Y	N	V	W	A	W	C	E	A
T	H	R	P	F	C	B	T	X	E	I	S	D	M	H	D	C	O

6 .

																V	
I	V	E	W	G	U	Y	G	W	L	F	H	O	D	K	L	O	H
G	R	O	W	U	V	T	J	G	R	U	V	M	L	W	A	Z	L
D	B	E	X	Y	R	D	N	V	R	R	N	F	O	D	W	D	T

7 .

																T	
D	O	K	K	Z	S	K	Z	Y	N	V	N	K	R	B	C	W	G
J	J	J	Q	I	G	N	Q	K	R	C	P	X	D	Q	A	B	N
G	R	Z	W	Y	F	G	Z	W	Z	X	R	S	I	D	C	W	W

8 .

																F	
E	J	B	T	L	A	U	D	Z	Q	V	W	U	I	X	C	D	V
G	W	A	F	D	R	V	N	M	F	D	K	H	V	V	T	V	J
Y	I	F	I	U	Y	J	A	D	B	R	K	Z	X	U	Z	R	R

Post-Experimental Questionnaire

Questions about the Experiment

1. In your own words, describe the factor(s) that influenced the level of effort you put into the letter-search task.

2. I enjoyed working on the letter-search task.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

3. The letter-search task was challenging.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

4. It was important for me to perform well on the letter-search task regardless of the compensation.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

5. I think I counted more search boxes correctly than any of my team members.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

6. In your own words, describe why you decided to (or not to) deduct points from your group members on the letter-search task.

7. I think my group members took many points away from me on the letter-search task.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

Scenarios

The scenarios in this section are independent of each other and are independent of the experimental task you just performed. Please answer the questions in each scenario based on **only** the information provided in each scenario.

Scenario One

Imagine you signed up for another experiment in which you will be assigned into small groups. Each group member will work on a challenging task independently and will be compensated based on his/her individual performance.

Further assume that you have the choice of working in one of two rooms.

Room A, the public recognition room

In this room, the participant with the highest individual performance in each group will be notified and recognized publicly. That is, you will be notified if you achieve the highest individual performance in your group, and you will stand up to be applauded by other participants for this achievement.

Room B, the no recognition room

In this room, participants with the highest individual performance in each group will NOT be notified or recognized.

Which room would you select to work in?

____ Room A, the public recognition room

____ Room B, the no recognition room

Why?

Scenario Two

Below, please find 15 items representing choices between a sure thing and a lottery. For each item, please indicate whether you would prefer the $5.00 for sure or the specified lottery by placing a mark next to your choice. **Be sure to make a choice for each of the 15 items.**

	Sure Thing			Lottery
1.	_____ $5.00 for sure	OR	_____	85% chance for $10.00 15% chance for $0.00
2.	_____ $5.00 for sure	OR	_____	80% chance for $10.00 20% chance for $0.00
3.	_____ $5.00 for sure	OR	_____	75% chance for $10.00 25% chance for $0.00
4.	_____ $5.00 for sure	OR	_____	70% chance for $10.00 30% chance for $0.00
5.	_____ $5.00 for sure	OR	_____	65% chance for $10.00 35% chance for $0.00
6.	_____ $5.00 for sure	OR	_____	60% chance for $10.00 40% chance for $0.00
7.	_____ $5.00 for sure	OR	_____	55% chance for $10.00 45% chance for $0.00
8.	_____ $5.00 for sure	OR	_____	50% chance for $10.00 50% chance for $0.00
9.	_____ $5.00 for sure	OR	_____	45% chance for $10.00 55% chance for $0.00
10.	_____ $5.00 for sure	OR	_____	40% chance for $10.00 60% chance for $0.00
11.	_____ $5.00 for sure	OR	_____	35% chance for $10.00 65% chance for $0.00
12.	_____ $5.00 for sure	OR	_____	30% chance for $10.00 70% chance for $0.00
13.	_____ $5.00 for sure	OR	_____	25% chance for $10.00 75% chance for $0.00
14.	_____ $5.00 for sure	OR	_____	20% chance for $10.00 80% chance for $0.00
15.	_____ $5.00 for sure	OR	_____	15% chance for $10.00 85% chance for $0.00

Scenario Three

Imagine that you have been randomly paired with another person, whom we will refer to simply as the "Other". This other person is someone you do not know and that you will not knowingly meet in the future. Both you and the "Other" person will be making choices by circling either the letter A, B, or C. Your own choices will produce points for both yourself and the "Other" person. Likewise, the other's choice will produce points for him/her and for you. Every point has value: the more points you receive, the better for you, and the more points the "Other" receives, the better for him/her.

Here's an example of how this task works:

	A	B	C
You get	500	500	550
Other gets	100	500	300

In this example, if you chose A you would receive 500 points and the other would receive 100 points; if you chose B, you would receive 500 points and the other 500; and if you chose C, you would receive 550 points and the other 300. So, you see that your choice influences both the number of points you receive and the number of points the other receives.

Before you begin making choices, please keep in mind that there are no right or wrong answers – choose the option that you, for whatever reason, prefer most. Also, remember that the points have value: The more of them you accumulate, the better for you. Likewise, from the "other's" point of view, the more points s/he accumulates, the better for him/her.

For each of the nine choice situations, circle A, B, or C, depending on which column you prefer most:

		A	B	C
(1)	You get	480	540	480
	Other gets	80	280	480
(2)	You get	560	500	500
	Other gets	300	500	100
(3)	You get	520	520	580
	Other gets	520	120	320
(4)	You get	500	560	490
	Other gets	100	300	490
(5)	You get	560	500	490
	Other gets	300	500	90
(6)	You get	500	500	570
	Other gets	500	100	300
(7)	You get	510	560	510
	Other gets	510	300	110
(8)	You get	550	500	500
	Other gets	300	100	500
(9)	You get	480	490	540
	Other gets	100	490	300

Scenario Four

Imagine that you have been randomly paired with another person, whom we will refer to simply as the "Other". The "Other" person gets endowed 100 tokens with $0.20 each and decides how many of the endowed tokens to give you. Each token the "Other" person gives you will become two tokens and you will keep the doubled amount. Before the other person decides how many tokens to give you, you can enforce one of the following two rules:

A. ____The "Other" person has to give you at least 15 tokens.
B. ____The "Other" person can give you as many or as few tokens as he/she wishes.

Assume that the "Other" person is aware that you selected one of the two rules above. **Which rule will you select? Please check one above.**

Scenario Five

Assume you have been randomly grouped with two people. Assume we endow everyone in your group with 100 tokens worth $0.10 each. You and your two group members will individually make decisions on how many of your 100 tokens to contribute to a group account. Each token contributed to the group account will yield two tokens for your group. Each member in your group will receive an equal share of the balance in the group account regardless of his or her individual contribution. That is, you will get a share of the balance in the group account even when you contribute nothing. Each group member gets to keep any of his or her endowment not contributed to the group account.

The unconditional contribution decision

Without any information about your group members' contribution decisions, how many tokens would you contribute to the group account?

Please enter a number between 0 and 100? _____

The conditional contribution decision

In the contribution table below, please indicate for each possible average contribution of the other group members how many tokens you would contribute to the group account. Please enter a number between 0 and 100 in each cell below.

Average contributed by others	Your conditional contribution
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Questions about You

How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? **Please indicate the extent to which you agree or disagree with that statement by writing a number between 1 and 5 next to the statement.**

1 **Disagree** Strongly	2 Disagree a little	3 Neither agree nor disagree	4 Agree a little	5 **Agree** strongly

I am someone who…

1. _____ Is talkative
2. _____ Tends to find fault with others
3. _____ Does a thorough job
4. _____ Is depressed, blue
5. _____ Is original, comes up with new ideas
6. _____ Is reserved
7. _____ Is helpful and unselfish with others
8. _____ Can be somewhat careless
9. _____ Is relaxed, handles stress well.
10. _____ Is curious about many different things
11. _____ Is full of energy
12. _____ Starts quarrels with others
13. _____ Is a reliable worker
14. _____ Can be tense
15. _____ Is ingenious, a deep thinker
16. _____ Generates a lot of enthusiasm
17. _____ Has a forgiving nature
18. _____ Tends to be disorganized
19. _____ Worries a lot
20. _____ Has an active imagination
21. _____ Tends to be quiet
22. _____ Is generally trusting
23. _____ Tends to be lazy
24. _____ Is emotionally stable, not easily upset
25. _____ Is inventive
26. _____ Has an assertive personality
27. _____ Can be cold and aloof
28. _____ Perseveres until the task is finished
29. _____ Can be moody
30. _____ Values artistic, aesthetic experiences
31. _____ Is sometimes shy, inhibited
32. _____ Is considerate and kind to almost everyone
33. _____ Does things efficiently
34. _____ Remains calm in tense situations
35. _____ Prefers work that is routine
36. _____ Is outgoing, sociable
37. _____ Is sometimes rude to others
38. _____ Makes plans and follows through with them
39. _____ Gets nervous easily
40. _____ Likes to reflect, play with ideas
41. _____ Has few artistic interests
42. _____ Likes to cooperate with others
43. _____ Is easily distracted
44. _____ Is sophisticated in art, music, or literature

Here are a number of statements that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly	Disagree moderately	Disagree a little	Neither agree or disagree	Agree a little	Agree moderately	Agree strongly
1	2	3	4	5	6	7

1. _____I tend to manipulate others to get my way.
2. _____I tend to lack remorse.
3. _____I tend to want others to admire me.
4. _____I tend to be unconcerned with the morality of my actions.
5. _____I have used deceit or lied to get my way.
6. _____I tend to be callous or insensitive.
7. _____I have used flattery to get my way.
8. _____I tend to seek prestige or status.
9. _____I tend to be cynical.
10. _____I tend to exploit others toward my own end
11. _____I tend to expect special favors from others.
12. _____I want others to pay attention to me.

On the pages that follow, you will find a list of 40 pairs of statements. Please check the statement that best matches you from each pair (even if it's not a perfect fit).

1.	A__	I have a natural talent for influencing people.	B__	I am not good at influencing people.
2.	A__	Modesty doesn't become me.	B__	I am essentially a modest person.
3.	A__	I would do almost anything on a dare.	B__	I tend to be a fairly cautious person.
4.	A__	When people compliment me I sometimes get embarrassed.	B__	I know that I am good because everybody keeps telling me so.
5.	A__	The thought of ruling the world frightens the hell out of me.	B__	If I ruled the world it would be a better place.
6.	A__	I can usually talk my way out of anything.	B__	I try to accept the consequences of my behavior.
7.	A__	I prefer to blend in with the crowd.	B__	I like to be the center of attention.
8.	A__	I will be a success.	B__	I am not too concerned about success.
9.	A__	I am no better or worse than most people.	B__	I think I am a special person.
10.	A__	I am not sure if I would make a good leader.	B__	I see myself as a good leader.
11.	A__	I am assertive.	B__	I wish I were more assertive.
12.	A__	I like to have authority over other people.	B__	I don't mind following orders.
13.	A__	I find it easy to manipulate people.	B__	I don't like it when I find myself manipulating people.
14.	A__	I insist upon getting the respect that is due me.	B__	I usually get the respect that I deserve.
15.	A__	I don't particularly like to show off my body.	B__	I like to show off my body.
16.	A__	I can read people like a book.	B__	People are sometimes hard to understand.
17.	A__	If I feel competent I am willing to take responsibility for making	B__	I like to take responsibility for making decisions.
18.	A__	I just want to be reasonably happy.	B__	I want to amount to something in the eyes of the world.
19.	A__	My body is nothing special.	B__	I like to look at my body.
20.	A__	I try not to be a show off.	B__	I will usually show off if I get the chance.

21.	A__	I always know what I am doing.	B__	Sometimes I am not sure of what I am doing.
22.	A__	I sometimes depend on people to get things done.	B__	I rarely depend on anyone else to get things done.
23.	A__	Sometimes I tell good stories.	B__	Everybody likes to hear my stories.
24.	A__	I expect a great deal from other people.	B__	I like to do things for other people.
25.	A__	I will never be satisfied until I get all that I deserve.	B__	I take my satisfactions as they come.
26.	A__	Compliments embarrass me.	B__	I like to be complimented.
27.	A__	I have a strong will to power.	B__	Power for its own sake doesn't interest me.
28.	A__	I don't care about new fads and fashions.	B__	I like to start new fads and fashions.
29.	A__	I like to look at myself in the mirror.	B__	I am not particularly interested in looking at myself in the mirror.
30.	A__	I really like to be the center of attention.	B__	It makes me uncomfortable to be the center of attention.
31.	A__	I can live my life in any way I want to.	B__	People can't always live their lives in terms of what they want.
32.	A__	Being an authority doesn't mean that much to me.	B__	People always seem to recognize my authority.
33.	A__	I would prefer to be a leader.	B__	It makes little difference to me whether I am a leader or not.
34.	A__	I am going to be a great person.	B__	I hope I am going to be successful.
35.	A__	People sometimes believe what I tell them.	B__	I can make anybody believe anything I want them to.
36.	A__	I am a born leader.	B__	Leadership is a quality that takes a long time to develop.
37.	A__	I wish somebody would someday write my biography.	B__	I don't like people to pry into my life for any reason.
38.	A__	I get upset when people don't notice how I look when I go out in	B__	I don't mind blending into the crowd when I go out in public.
39.	A__	I am more capable than other people.	B__	There is a lot that I can learn from other people.
40.	A__	I am much like everybody else.	B__	I am an extraordinary person.

Major.	_____	
Years in college.	_____	
Age.	_____	
GPA.	_____	
Gender.	❒ **Male**	❒ **Female**
Was English your first language?	❒ **Yes**	❒ **No**

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